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DUBLIN
SOCIETY'S
WEEKLY
OBSERVATIONS

FOR THE ADVANCEMENT OF
AGRICULTURE AND MANUFACTURES.

*Vol. 1-52. From Jan. 4
1736-7 to April 4, 1738*

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CONTENTS.



I *Introduction.*

N^o I.

General reflections on the present state of Ireland, in relation to our trade and manufactures, with a list of such commodities as have been hitherto imported, though they may be raised or manufactured in the kingdom.

N^o II. to N^o VII. *Inclusive.*

Several letters on flax-husbandry.

N^o VIII. to N^o XV. *Inclusive.*

Directions for raising banks against tides and floods.

N^o XVI. XVII. XVIII.

A method of raising hops in red-bogs.

N^o XIX. and XX.

Directions for making roads.

N^o XXI. and XXII.

Instructions for making cyder.

N^o XXIII. to N^o XXVI. *Inclusive.*

CONTENTS.

*General observations on the most proper method
of lowering the price of Irish linens without
injuring the manufacturer.*

N^o XXVII. XXVIII. and XXIX.

Several letters on Flax-dressing.

N^o XXX. to XLIII. Inclusive

*Abstracts of the directions upon flax-husbandry
and flax-dressing.*

N^o XLIV. and XLV.

Several letters upon brewing.

N^o XLVI. to N^o LI. Inclusive

Conclusion.

N^o LI.





DUBLIN SOCIETY'S

W E E K L Y

OBSERVATIONS.

N^o I. *Tuesday, January 4th, 1736-7.*

THE gentlemen, who by a voluntary association formed themselves into a society, pretty well known at present by the name of the DUBLIN SOCIETY, having already given the public some general account of the design that first brought them together, and which they ever since, have unweariedly pursued: it will be sufficient for the purpose of this paper, to inform the reader of the particular reasons, which have now engaged them to give their instructions a new form, and to endeavour the farther improvement of husbandry, and other useful arts, by weekly observations.

It may seem at first sight, that pamphlets and the larger kinds of essays, are better fitted to con-

A

vey instructions of this nature, than the loose sheets which they intend to publish for the future: 'tis a plausible objection against the latter method, that the connection being interrupted, and the directions to the husbandman and others, confined and cramped by the dimensions of the paper, something must probably be lost of that clearness and exactness, which are absolutely requisite, to make such writings useful: but when the thing is more attentively considered, the advantages will certainly be found to lie all the other way; and that far from being more obscure, the Society's instructions by these means will become more distinct and more explicit. In a pamphlet it is expected, that the whole subject, with its several branches, be considered together, and brought under one view; thereby the particulars are crowded, and the attention of the reader broken and divided by a multiplicity of objects. In single papers, it is quite otherwise; the writer may confine himself to as few heads as he thinks fit; and if any one of moment offers, make that the business of the day, and keep his reader steady to the point before him. Should the gentlemen of this Society, write any thing on tillage, in the shape and with the title of a treatise; they must attend the farmer in his progress, from the plough to the flail; direct his industry, from the choosing of the seed, to the



WEEKLY OBSERVATIONS. 3

saving of the crop; and of consequence, neglect some material observations, or swell their works to an unreasonable size. In the way now intended, both these inconveniences may be consistently avoided: nothing that is not material, need be mentioned in these papers, and for that very reason, nothing that is really so, need be totally neglected, or superficially considered.

Were husbandry, and other arts in their infant state among us, either not at all, or no more than just discover'd; compleat and regular treatises would then indeed be necessary, to give a general knowledge of them to the artist, and to guide him step by step, where every thing were new to him: but as this is not the case, and a few perhaps excepted, the improvement of arts already known, and not their introduction, is the thing wanted in this kingdom: separate papers, where the several errors and deficiencies in our present management, will be consider'd singly, and therefore more distinctly, seem to tally exactly with our wants, and afford the likeliest prospect of success. Add to this, that the perfection of all arts consisting in minute observations and little niceties, they commonly escape the artist, where the instructions are voluminous, and his attention taken up by other observations, seemingly more important: while by standing single they will be drawn into a stronger

4 THE DUBLIN SOCIETY'S

light, and brought within the notice of the reader.

To these advantages arising from the very nature of these papers, must be added those which will accrue from the easier distribution of them. Pamphlets fall into few hands, and are useful to those only, who are in a capacity to purchase, and at leisure to peruse them. But, these shorter essays, it may reasonably be hoped, will reach every reader in the kingdom.

Gentlemen of fortune, and conversant with books, cannot well be at a loss for sufficient directions in any thing they undertake. They can command the same means of information with the members of this Society; peruse the discoveries of others, and make experiments themselves: it would be therefore, a design of a very confined advantage, to write only for their use: the poorer sort, the husbandman and manufacturer, are the proper objects of instruction, which can hardly ever reach them in any other method than the present. A few, perhaps, there are, who might receive some benefit from the many useful books already extant on these subjects, or from the larger treatises, which the gentlemen of this Society, might have writ from time to time, had they adher'd to their first plan: but the majority of our common people, must have continued in their ignorance, had

not a way been found of conveying knowledge to the poor, at a very easy rate; and to the indolent or busy readers in small parcels.

Were the gentlemen of the Society actuated by the mean ambition of commencing authors, then indeed their observations had probably appeared in another shape. But different motives required a different conduct. Their intention is not to amuse the public, with nice and laboured speculations; or to enrich the learned world, with new and curious observations: but, in the plainest manner, to direct the industry of common artists; and to bring practical and useful knowledge from the retirements of libraries and closets into public view: in short, to be universally beneficial is their only end; and whether they attain it, by making new discoveries, or publishing those already made; by encreasing the present fund of knowledge, or by conveying it into more hands, is to them perfectly indifferent.

This, they hope, will be understood as an invitation to all persons, who truly love their country, to throw in their mite into the common stock, by communicating to this Society their experiments and observations; their objections, if they have any; and if they please their doubts; any loose hints which may occur to them, and whatever else may contribute to the perfection of these papers.

M

N^o II. *Tuesday, January 11th, 1736-7.*

THE natural riches of a country are certainly the produce of the soil, and the labour of the manufacturer; peculiar advantages of situation, or superior skill in trade, may indeed supply the want of them imperfectly and for a time; but can never be depended on as a full equivalent for either, in value or duration: 'tis therefore on the riches of the earth, and on those improvements which they may receive from art, that the hopes of introducing wealth among us must ultimately rest; and without we can force our soil to yield better, and persuade our artificers to extend their industry to more particulars, the present poverty of the nation can never be removed, and will probably encrease.

'Tis not to be expected that one single manufacture, though, indeed, in a promising condition, should support us any time against the constant drain of large and numerous imports. This were the utmost we could hope, had we arrived already at that perfection in our linens which time alone, and repeated endeavours can bestow: to rely upon them now with an unlimited dependance, and neglect the diminution of our imports, is expecting more than, in their present state, they can possibly perform. This is

WEEKLY OBSERVATIONS. 7

not to be understood as if it carried with it any remote intention of discouraging the linen trade. The gentlemen of the Society are abundantly convinc'd, that nothing else can be equally depended on, and that whenever riches flow into this kingdom, it must be through that channel. The design of the foregoing observation is only to forewarn us of those many obstructions in our way, which have hitherto prevented the natural effects of a growing manufacture, and to engage us to remove them, by raising in our own soil, and working with our own hands, some of those numerous commodities that are yearly imported from abroad. 'Till something of this kind be successfully attempted, we only labour at our looms for the benefit of others, and drudge hard to enrich their farmers and artificers; while our little wealth is insensibly consumed, and the kingdom wastes under a lingering disease.

It would be an inhuman insult to expose our present misery, and aggravate the sense of it by the prospect of a greater, were it not in our own power to remove the evils we now feel, and prevent those which we are threatned with: but as our misfortunes are, in a proper sense, our faults, all, who truly love their country, are concerned to set them in the strongest light.

The natural soil of this island, and the num-

8 THE DUBLIN SOCIETY'S

ber and ingenuity of its inhabitants, would, under proper management, make it as remarkable for wealth, as it is now for poverty.

There is no country in the northern parts of Europe which it does not equal in fertility, and most of them it remarkably excels. The richest of our neighbours are only so far before us in the goodness of their crops, as they exceed us in the culture of their lands; and the difference there is between us, is not originally in the soil, but only in the husbandman. No kind of growth, that can be rear'd under a northern sun, has miscarried in this climate; and the few trials we have made of late have all turn'd out to our reproach, by evidently shewing, that it was only from our indolence, that so many useful crops were still unknown among us.

On the other hand, the dexterity of the inhabitants is no ways inferior to that of any other people. 'Tis neither want of understanding to invent, nor of skill to execute, that keeps us so far behind them. Where we have applied ourselves with common care, we have, perhaps, uncommonly succeeded: and though the instances are few, because our attempts themselves are so, yet a sufficient number might be found to shew the ingenuity of our artists.

The number of inhabitants, in the more distant provinces especially, is not as great as might

un- e with'd. But neither on the other hand is it
able remarkably deficient; and were the wandering
spirit laid, which has unhappily possess'd our
people, and all the hands we have, beneficially
employ'd, a great deal might be done even with
the present stock, which would undoubtedly en-
crease in proportion to our riches.

This is our natural condition: what use we
hitherto have made of it is an uncomfortable en-
quiry. To judge of this country by its imports,
far from thinking it fruitful and inhabited, one
would be tempted to imagine that it was a bar-
ren desert, destitute of every thing but some
straggling herds of cattle. Besides what they af-
ford us, there is no commodity whatever, linen
not excepted, of which some quantities are not
every year imported. We, strictly speaking, trust
to our own growth for nothing, but are in e-
very point more or less dependant upon foreign
countries; lie at their mercy for our very food
and raiment, have our bread from their barns,
and our cloths from their looms.

These reflections took their rise from an en-
quiry the Dublin Society lately made into the
nature and value of our imports, and from that
honest indignation, which every one must feel
who loves his country, to find them so nume-
rous and so considerable.

Their design in this enquiry, was to direct

their own labours for the good of their countrymen, and to make their instructions more eminently useful, by knowing first where they were most wanted. But instead of the advantage they propos'd, the surprizing quantity of our imports has rather puzzled and perplex'd their views, than any ways determin'd them. Where every thing is wanted, 'tis not easy to decide what particulars are most so. The field is too wide to be regularly parcell'd out, and our necessities too many to wait a leisurely enumeration. They have therefore alter'd their design, and intend, in the next paper, to lay before the reader, in one view, a general account of those numerous commodities, which our indolence alone has brought under the head of imports: and as nothing shall be there inserted which may not easily be rais'd, or at least, manufactured in this kingdom, they hope it will be understood as an earnest invitation to the many idle hands among us, to choose, from that account, some useful occupation for themselves.

Among the great variety of beneficial employments, which such a survey of our wants invites our artists to attempt, 'tis hardly possible, but all the willing and industrious should meet with something to their taste; and whenever they will properly apply themselves, they cannot fail of a reward; since, at a moderate com-

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WEEKLY OBSERVATIONS. 11

putation, half the wealth yearly drain'd out of this kingdom, might, with proper management, be kept in our own hands; and above 500,000l. thereby distributed among our workmen, which they are, every year, depriv'd of, by the superior diligence of others. M

N^o III. *Tuesday, January 18th, 1736-7.*

A List of COMMODITIES imported yearly into IRELAND, being such as may be either raised or manufactured therein, together with their yearly Value, taken at a Medium for the three last Years.

DENOMINATIONS.		Medium of the current Prices.			Total.		
		l.	s.	d.	l.	s.	d.
ALE and Beer, per Barrel -			15		716	17	3
Apples, per Bushel -			2	4	156	12	7
Bark, per Barrel -			6	8	18415	2	5
Battery, per 100 Weight -		7	10		697	1	1
Cards for Wool, per Dozen -			10		436	17	6
Cheese, per 100 Weight -			16	8	900	11	8
Coaches, Value -					786	10	
Coals, per Ton -			12		41115	13	5
Copper Plates, per 100 Weight -		6			3096	4	7
Cordage, per 100 Weight -		1			29	7	9
Corn	Wheat, per Quarter -	1	13		54138	19	3
	Barley and Malt, per Quarter -	1	2		25075	8	
	Hull'd Barley, per 100 Weight -	1	3		558		6
	Flower, per Barrel -	1	4		20328		
Drapery	Old, per Yard -		15		10827	3	8
	New, per Yard -		2	6	2293	19	
	Prunella, per Yard -		3	6	450		6
	Shag, per Yard -		4		122	6	2
Carried over							

12 THE DUBLIN SOCIETY'S

DENOMINATIONS.		Medium of the current Prices.		Total.	
		l.	s. d.	l.	s. d.
Earthen Ware, Value - - -				4778	5 6
Fans, per Piece - - -			2 6	742	7 6
Flax undress'd, per 100 Weight -		1	5	3491	18 9
Fustians, per End - - -			14 6	2874	1 7
Glas	Bottles, per Dozen - - -		1 4	5252	18 9
	Cases, per Piece - - -	1	10	1942	11
	Drinking, per Dozen - - -		2	846	8 11
	Vials, per 100 - - -		6 8	359	12 3
	Rhenish Webb, per Webb -	3		318	13 4
Glas Ware, Value - - -				1919	18 8
Gloves, per Pair - - -			3	84	6
Gunpowder, per 100 Weight -		3	5	2302	18 8
Hats, each - - -			15	396	10
Hemp undress'd, per 100 Weight		1	4	11987	10 4
Hempseed, per Hogthead - -		1	5	27	4 4
Herrings, per Barrel - - -			10	2294	9 11
Hops, per 100 Weight - - -		4	10	46995	5 4
Horses for the Army and Coaches, &c.				4000	
Iron-mongers Ware	Unwrought per Pound - -		2 6	1576	3 9
	Wrought per Pound - - -		4	381	9 8
	Iron, per 100 Weight - - -	14		42610	12 3
	Knives, each - - -		3	5119	10 2
	Pots, each - - -		6	255	9 11
	Scissars, per Grose - - -	1	8	192	1 2
	Scythes, per Dozen - - -		16 8	1967	10 10
	Small Parcels, Value - -			697	12 8
Hard-ware, Value - - -				3135	11 3
Iron Ore, per Tun - - -			14	1187	2 10
Lace	Gold and Silver, per Pound	4		524	18 1
	Thread-bone, per Yard -	1		7198	1 8
Lead	Lamp-black, per Pound - -		1 4	187	5
	White { Valuing the } per 100				
	{ Manufacture exclu- } Weight.	1	4	1015	4 3
Lead	{ sive of the } per 100				
	Red { Material. } Weight.	1	4	434	4
Carried over					

D E
Liquor
Linen
Linen
Lint
Madd
Millin
Needl
Paper
Oyle
Pewee
Saffro
Salt
Seeds
Silk M
of
Skins
Soap,
Stock
Sugar
Syder
Thin
Toys

WEEKLY OBSERVATIONS. 13

DENOMINATIONS.		Medium of the current Prices.			Total.		
		l.	s.	d.	l.	s.	d.
Liquorish, per 100 Weight	-	1			257	2	3
Linen, British, per Yard	-		2		197	5	
Linen	{	Callicoes	{ Stained, per Ell		4		613
			{ White, per Ell		3		60
	{	Cambrick, per Ell		5	6	17933	4
		Hollands, per Ell		5		867	14
		Kenting, per Ell		3	6	194	3
		Lawns, per Ell		5	6	2598	1
Lintseed, per Hoghead	-	2			14592	10	
Madder, per 100 Weight	-	1	10		3141	10	9
Millinary Ware, Value	-				5129	15	5
Needles, per thousand Dozen	-	4			574	14	1
Oyle	{	Lintseed, per Gallon		2		1437	12
		Train, per Gallon			6	660	1
Paper	{	Brown, per Bundle		2	8	122	16
		Cap, per Rheam		3	4	8	16
		Printing, per Rheam		2		2355	16
		Writing, per Rheam		4	8	2357	14
Pewter, per 100 Weight	-	4	10		688	14	9
Saffron, per Pound	-	1	10		566		
Salt	{	Foreign, per Bushel		1		11663	14
		White from England, per Bushel		1		13770	4
Seeds for Gardens, per Pound	-	3			2935	8	
Silk Manufacture, valued exclusive of the Material		-	-	-	30691	10	
Skins, Sheep per Skin	-		1	4	277	1	
Soap, per 100 Weight	-	1	5		628	1	11
Stockings	{	Silk, per Pair		12	6	59	8
		Worsted, per Pair		6		74	6
Sugar	{	Candy	{	Valued exclusive of the Material	per 100 Wt.	5	176
						5	3452
						1	2893
Syder, per Tun	-	4	10		1921	8	4
Thimbles, per 1000	-	2			65	19	7
Toys, Value	-				2432	2	11

Carried over

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DENOMINATIONS.		Medium of the current Prices.			Total.		
		l.	s.	d.	l.	s.	d.
Thread	{ Gold and Silver, per Pound -	2	10		5469	15	7
	{ Sifter's Thread, per Pound -		14		1469	4	10
	{ Whited brown, per Pound -		2	6	330	19	9
	Tiles, per 1000 - - - -	1	5		205	3	9
	Upholstery-ware, Value - - -				700	6	4
	Wood, per 100 Weight - - -		18		37	14	6
	{ Barrel Staves, per 100 - - -		3	6	4812	17	7
	{ Balks, per 100 - - - -	20			4959	10	
	{ Clap-boards, per 100 - - -	10			419	2	3
Wood	{ Clap-holt, per 100 - - -	10			631	11	1
	{ Deals, per 100 - - - -	2	10		13703	6	4
	{ Hoops, per 100 - - - -		4		3089		
	{ Plank, Value - - - -				1125	12	6
	{ Timber, per Tun - - - -	2			4150	9	1
	Wooden-ware, Value - - -				1146	10	
Yarn Wye	{ Brass, per 100 Weight - - -	6			33	16	6
	{ Iron, per 100 Weight - - -	2	10		2140	10	
	{ Latin, per 100 Weight - - -	5			1877	4	4
	{ Linen, per Pound - - - -		1	2	61	4	7
	{ Worsted, per Pound - - -		4	6	146	11	
Total					507270	2	3

N^o IV. *Tuesday, January 25th, 1736-7.*

BX the list published in the Society's last paper, the commodities yearly imported into this kingdom, which may be raised in our own soil, or manufactured by our own hands, are estimated at 507,270 pounds: but when we consider, that most of the goods therein mentioned are rated below their real value, and that

WEEKLY OBSERVATIONS. 15

great quantities of them, being run or concealed, are not valued at all; we may very reasonably conclude, that the total amount of these commodities cannot be less than 700,000 pounds.

It will appear very surprising, and is really a matter of great reproach to us, that we yearly pay such immense sums for foreign commodities, when we have it in our power to furnish ourselves with goods of the same kind by the labour of our own people, who for want of being so employed, are reduc'd to a poor and starving condition.

But should we take a general view of all our imports, there would arise new occasion of surprise and reproach; the remaining articles of commodities yearly imported into this kingdom, are chiefly wines, brandies, East and West India goods, these with many other branches, which we may particularly take notice of hereafter, are considerably above the value of 400,000 pounds, and serve hardly any other use than to gratify our luxury.

By this short view of our import trade, we find that we can consume yearly above the value of a million sterling in foreign commodities, which far from being necessary or useful to us, are for the greatest part destructive of our trade, and means of exhausting the wealth of the na-

16 THE DUBLIN SOCIETY'S

tion. More than half of them we can raise, or at least manufacture, where the material is of foreign growth, and the remainder are only superfluities, which might very well be spared.

The commodities which we export to purchase the goods of other countries, are chiefly linen-cloth, linen and woollen yarn, wool, beef, butter, hides and tallow. All these, except the linens, are not much removed from the state, in which we receive them from nature, and undergo little or no labour or manufacture, and are necessary or useful to those countries either for their manufactures or consumptions. But the greatest part of the goods we take from them in exchange for ours, are so far from being of use to us, that they destroy the industry of the poor, and only supply the luxury of the rich.

Whilst we consume such great quantities of foreign commodities, we so far encourage and employ the poor of other countries, and starve our own.

As the strength and riches of every country are founded on the number, frugality, and industry of its inhabitants, it should be the aim and business of every wise state to find employment for their people; where the community are fully and properly employed they will not fail to be rich, and where any great num-

ber of them are idle the whole will be poor.

The raising of provisions for our subsistence, and materials for manufactures out of our soil requires the labour of a small part of our people only: but manufacturing the materials, which we can raise at home, or purchase abroad, would give full employment to all. And we ought chiefly to apply ourselves to manufactures, since the work of an artificer is of more value to the public than that of a common labourer, and one cargo of manufactures may be worth ten others made up of provisions and the mere produce of nature.

It has been an usual complaint, and an excuse for the idleness and poverty of our people, that we lie under great restraints in our trade, and have not sufficient work to employ them in; but whoever looks into the aforesaid list will find many articles, wherein all our spare hands may be fully employed, by which they might get a comfortable livelihood for themselves, and at the same time save vast sums yearly to the kingdom.

This list will serve as a general index, to shew which commodities are in demand, and which are not, and may be a direction to an undertaker to choose such a branch of business as may turn to best account.

We already raise or manufacture consider-

able quantities of every sort of the commodities mentioned in the list, which is sufficient to prove that we do not want skill, and we have many advantages to enable us to extend our industry much farther, and to supply ourselves with all we want, when we consider that the price of labour and provisions is much cheaper with us, than in those countries we trade with, that our soil is very fit for producing every thing we have occasion for, and that we have many spare hands among us who want employment, as may be seen by the great number of our people who go abroad yearly to seek for work. To which we must add this farther encouragement, that the greatest part of foreign commodities are subject to a duty of 10 per cent. on importation, besides about 5 per cent. more for freight, commission and ensurance, which is a charge that all goods of our own growth and manufacture are entirely free from: whoever has an advantage over others of 15 per cent. in the sale of his commodities may easily undersel them, and command the market.

We shall here take notice of a late improvement among us, which is a great ease and benefit to inland commerce, that by means of our turnpike acts we have the finest roads in Europe, and perfect gravel-walks from one part of the kingdom to another.

WEEKLY OBSERVATIONS. 19

We have hitherto subsisted under vast payments yearly to foreigners for their commodities, and to our gentlemen who live abroad for the rents of their estates, and how we have been able to subsist so long, is matter of great surprise. It is a proof that our vitals are good and strong, but if all our people were fully employed, we should not only lessen the importation of foreign goods, but greatly encrease the value of all we export, which would enable us to answer all demands upon us from abroad, and lay up a fund of wealth at home.

The Dublin Society have made it their chief business to raise and cultivate a spirit of industry among us, and will continue their best endeavours to promote the same, by publishing instructions on husbandry and other useful arts.

N^o V. *Tuesday, February the 1st, 1736-7.*

UPON taking a second view of the commodities imported into this kingdom, the Society have thought some farther remarks upon them might be useful.

If we had mines of gold and silver of our own, and could raise sufficient quantities of those valuable metals, we might then safely indulge ourselves in the consumption of foreign com-

modities; a large stock of bullion would be of little use to us, and lie as dead in our coffers, as if it had still remained in the mines, unless it were exported for all the conveniencies we want; we might then even gratify every innocent vanity without detriment to the public, and purchase a great deal of the labour of other countries with very little of our own: in that case, however, the community would neither be so happy, nor so powerful, as it would be, were all our people thoroughly employed; the labour of a whole people is of much more consequence and value than the richest mines of gold or silver, and where they abound, and a nation depends upon them, the lower rank are generally idle and beggarly.

Africa, Peru, and Spain are strong instances of this, where amidst the greatest treasures of this kind, the common people are remarkably indigent and miserable; while England and Holland, though destitute of mines, are able, by their industry, to drain the wealth of those very countries, and maintain themselves in plenty and prosperity.

Were our people as theirs are, fully and usefully employed, our labour would afford another method of supporting ourselves under considerable importations: the English and Dutch do not deny themselves any foreign commodi-

WEEKLY OBSERVATIONS. 21

ties of use or of conveniency, but they pay the price of them in their own goods, and earn them by their own hands; and could our people do the same, give their crops and manufactures for all they consume of foreign growth, our trade would be a saving one at least, and our luxury abundantly less destructive: or could we by a greater industry send commodities abroad, in value superior to our imports, we might perhaps support ourselves under all our present difficulties, answer the demands of gentlemen abroad, and supply the vanities of those that are at home. The labour of other countries would be paid back in kind, and the greater diligence of the husbandman and manufacturer, keep the balance on our side, notwithstanding our extravagance.

But neither of these cases is ours, we have neither mines of gold or silver to exchange for foreign commodities, nor are our people so fully employed, that we can purchase them by their labour: we riot in foreign luxuries, which we do not want, and are not able to pay for, and neglect what we do want, though it may every way be raised. Nature has given us a soil abundantly capable of supplying us with all the necessaries and conveniencies of life, and hands sufficient to raise them, and yet we starve in the

midst of plenty, and are beholden to other countries for our daily bread.

Should a foreigner see the great flocks of sheep and herds of cattle which cover our land, and the rich among us parrading in foreign silks, and living sumptuously, he must needs imagine that all the rest of our people are well fed and cloathed; but he will soon be convinc'd of the contrary, when he finds such numbers go naked and starving, and that wool, beef, and butter, which should be the portion of the poor, sent abroad to purchase luxuries for the rich.

It has been computed that twenty poor families, who never taste flesh meat, might be comfortably supplied for a whole year, with as much beef and butter as has been exported to purchase a head-dress for a lady. If this be the effect of trade, we shall be undone by trading.

It is the opinion of some that foreign trade, since the time it has so much prevailed in this part of the world, has increased the number of poor; and as our trade is at present manag'd, this seems to carry a great deal of reason with it; for when we had no traffic with other countries, and neither sent them our commodities, nor took any from them, we lived upon the produce of our own soil and labour, by which means all the necessaries of life were cheap and

in great plenty, none could want since the rich had no other way of disposing of their superfluities, but in hospitality and charity. But when we came to import great quantities of foreign goods, for the consumption of the rich, and to export a great part of our native commodities, which were the sustenance of the poor, then all provisions became dear and scarce, and the work of the poor was undervalued and slighted for the sake of foreign goods, which were more in fashion.

It is great folly in a poor nation to imitate the fashions of a rich one: the French, who supply infinite matter for luxury, may indulge themselves in the consumption of it without any detriment; the vanity of the rich is gratified by the labour of their poor, and the poor are maintained by the pleasures of the rich; all are served in their own way, and nothing lost to the public.

What may not be reckoned extravagance in another country, may certainly be so in ours. It is the highest imprudence in us to consume such great quantities of foreign commodities, at a time when we have a large demand of another kind upon us, and while such numbers of our people are unemployed, it is our interest, as much as possible, to limit our consumptions to the produce of our soil and labour, and to find

employment for all our idle hands; when that is done, it may be allowable to indulge ourselves in some extravagances from abroad, which, however, they may be of little use to us, may do no harm to the public. It is the interest, and should be the delight of every gentleman in this kingdom, to see that all his tenants be fully and properly employed: where they are so, they are ever able to pay their rents, either by the produce of the land, or their manufactures.

The article of spinning, which is the foundation of several manufactures, would give employment to a vast number of women, boys and girls, if duly encourag'd; and nothing can be set on foot, or carried on with so much ease; the price of a wheel is but a trifle to a landlord, though it may be very considerable to a poor woman, and when once it is set a-going, it will soon pay the first cost, and maintain the spinner after. It will be our fault and reproach if any are idle among us, since all may find employment in the linen manufacture, and be sure of a vent for all they can make.

Of what use is that gentleman to his country, who never sees his estate, and neither plants, builds, nor makes any improvement himself, nor gives encouragement to any other to do so upon his lands; but spends the income of his estate either abroad for the benefit of other peo-

ple, or at home in foreign superfluities; and consumes as much money in a year in embroidery and lace, as would set up many poor families, and put them in a thriving condition.

But where a gentleman lives upon his estate, and employs the people about him in improving his lands, raising plantations, building houses, and promoting husbandry and manufactures among them, at the same time that he advances his private fortune, he has the pleasure of supporting the poor that are industrious, and serving the public by their labour.

In how amiable a light must such a one appear to his country, who thus dispenses blessings continually to all around him, and lives to posterity in the improvements and ornaments of his own raising. P

N^O VI. *Tuesday, Febr. the 8th, 1736-7.*

THE Society's instructions are chiefly intended for the labouring part of the people: 'tis not therefore their design to engage deeply in general and political observations. What has been done that way in former papers, or what more may be met with in this, is calculated only to remove, if possible, that unhappy spirit of negligence and carelessness which has hitherto possess'd us. 'Till that gives place

to a generous concern for the welfare of our country; to an active and resolute pursuit of its real interest; 'tis in vain to give instructions, which can only then be serviceable, when they are received with pleasure and executed with diligence. Before the gentlemen of this Society can properly apply themselves to direct the industry of the nation, it is first necessary to excite it. They must make men willing to be useful, and afterwards inform them how they may be most so.

In one of their former papers something has been said of the natural advantages of this island, to encourage us to improve upon them by a regular and well directed employment of our hands; in the rest, the present condition of our trade has been laid before the readers, to convince them of the absolute necessity of a sudden change of measures; in all of them the comparison has been fairly stated, between what we now are, and what we might have been; and this general conclusion drawn, that unless we exert ourselves at last, the same indolence among the poor, and the same luxury among the rich, which have hitherto kept us low, must, in the natural course of things, finally undo us.

This conclusion, as it stands in those papers, upon plain and unanswerable proofs, has the weight of a thousand arguments. If approach-

WEEKLY OBSERVATIONS. 27

ing ruin cannot awaken us from our present lethargy, our case is desperate indeed: no remedy can be depended on to correct our errors, where the prospect of immediate misery has been of no effect.

'Tis not therefore the intention of this paper to start new matter, and multiply arguments on a subject that admits of no dispute: One point only, which appears of weight to them, and was barely hinted to the reader, the gentlemen of this Society think it proper to resume; 'tis of great moment in itself, and contains matter of encouragement, by affording reasonable grounds to hope, that the amendment of our conduct will be immediately attended with that of our condition.

It has been observ'd by the Society in their late remarks upon our commerce, that the commodities imported hither, a very few excepted, are in no sense necessary to us; while all those which we export, are strictly so to foreign countries: This is a favourable circumstance in trade, and gives the nation that enjoys it an unspeakable advantage of its neighbours. Our beef, our hides, our tallow, and our butter will always be wanted in the southern parts of Europe, for themselves, or for their colonies; and whatever quantity of these we can afford, consistently with the interest of the nation, will

therefore always find a market. No legislature ever will prevent the importation of the immediate requisites of life; prohibitions of that kind are in themselves absurd, and would be little minded by the people; and 'till our customers for these commodities can have pastures equal to our own, in a parched soil, and under a scorching sun, they must, at any rate, be furnish'd from our farms.

Our wool is another valuable commodity which will be always in demand. And so far is our trade in this particular from any danger of discouragement abroad, that it is the interest of our next and richest neighbour, to invite the importation of whatever we can spare.

This is meant of our wool unmanufactur'd, and consider'd as the produce of our soil, which is then, as our beef, and other articles already mentioned, of absolute necessity to others, and a certain export from this kingdom. Let the ballance of trade be never so much against them, all countries must be supplied with these: they are not things of choice or of conveniency, the use of which may be prohibited or restrain'd; but, properly, things of need, which must be had independently of any inferior considerations of gain or loss by trade.

Our consumption, on the contrary, so far as it is supplied by commodities of foreign growth,

is, to call it by the softest name, arbitrary only; introduc'd by imitation, and supported by the mode. The legislature may at any time confine it, and without any real detriment to the nation, or hardship on the subject, discourage or prohibit it.

This difference is visibly considerable, and in one main branch of trade puts the ballance entirely in our power. We may, whenever prudence shall require it, lessen one article of importation in any degree we please, without any apprehension of diminishing our exports, or in other words, bring bullion into the kingdom instead of brandies, wines, and other superfluities.

It may be the business of some other essay to consider how far this natural advantage might be carried by proper improvements in our husbandry; and how many more of the requisites of life we might raise for exportation by encouraging our tillage.

At present it may be more useful to prevent a mistaken and pernicious consequence which some readers might unwarily be led into from the foregoing observations.

'Tis the darling error of our gentlemen to keep whole counties under stock, and, 'tis not to be question'd, but the least shadow of an argument, to justify their practice, would be readily and industriously improv'd upon. The in-

tention of this SOCIETY lies indeed another way; but without some timely caution, what has been said of our natural advantages, would, in all probability, be wrested to the abuse of them. 'Tis certainly, as it has been represented, a favourable circumstance in trade, to enjoy a soil and climate which afford the immediate requisites of life in great plenty and perfection; but it is the wildest policy to depopulate whole provinces, to enlarge our exportation of them; when our own people are abundantly supplied, 'tis a happiness to be assured of a ready market for what then becomes a superfluity; but to multiply our stock to the diminution of our people, is equally inconsistent with common humanity, and with common sense.

'Tis impossible that a subject of so great importance should not occur again in a fitter place, where it may be treated at full length: what has now been said of it, is intended only as a caution against mistakes, or at most, as an useful hint which the reader may easily improve upon. M.

N^o VII. *Wednesday, Febr. 15th, 1736-7.*

THO' the authors of this paper are desirous to proceed to particular instructions, which at this season of the year might be of im-

WEEKLY OBSERVATIONS. 31

mediate use: they cannot prevail upon themselves to neglect the first essay of a correspondent, who engages in their design with earnestness and spirit, and seems so well acquainted with the real interest of this kingdom. It is to be hoped that his example will encourage others to send the SOCIETY their *Observations*, which shall always be thankfully received, and communicated to the public in the way that may make them most useful. The following letter requires no alterations.

GENTLEMEN,

YOUR last paper address'd the reader in a method I always thought most likely to succeed: encouragement will correct those, whom censure will provoke; and as it is the softest way of telling men their faults, to point out the advantages they have neglected, it is for that very reason generally the most prevailing. Give me leave therefore to pursue the chain of thought, you were at that time engaged in, and to point out to my countrymen the advantages they have in trade, considered in another view, as it relates to *manufactures*.

In this respect indeed every nation is nearly upon a level, and all differences between them inconsiderable, which do not arise from industry.

' The value of every manufacture, considered
' as such precisely, is a price set upon man's la-
' bour, which becomes by this means a vendible
' commodity, and capable of exportation. Hence
' the riches of a nation, as far as manufactures
' are concerned, are always in proportion to its
' diligence, a reward inseparably annexed to in-
' dustry, and which no peculiar advantage of
' climate or situation can procure.

' There are, however, even in this respect fa-
' vourable and inviting circumstances: *The fa-*
' *cility of exportation, the certainty of a de-*
' *mand, and the cheapness of materials,* give the
' preference to some manufactures over others,
' and consequently also the advantage to those
' countries which are most generally engaged in
' them.

' Of this kind is the staple manufacture of
' this kingdom, attended with all advantages,
' and free from all discouragements.

' England, our great mart for linens, is so si-
' tuated, that the carriage of them over, can
' scarce be called an exportation. We run few
' hazards, and are at small expence to convey
' them to the market, and have therefore no
' draw-backs worth mentioning upon our la-
' bour.

' The demand on the other hand is such as
' we could wish, great and constant; and unless

we labour to undo ourselves, certainly to be depended on for many generations.

‘ The consumption of that kingdom, where every labourer wears linen, and affords it to his children from their earliest infancy, cannot be easily conceived. At the lowest computation, allowing ten shillings only for the yearly expence of each inhabitant that way, it amounts to four millions Sterl. The greater part of this is every year imported, and will undoubtedly be so from hence, whenever we are able to supply them. It is the interest of Britain to give us the preference, and nothing but our own imprudence can at any time oblige them to turn this beneficial branch of trade into any other channel.

‘ The woolen manufacture is the genuine English staple, and they are too prudent to change it without necessity. It has been their constant policy, and is that of all wise states, to place their chief dependance upon one main branch of business; and whenever we shall do the same, and engage nationally in the linens, we may depend upon all the encouragement we can receive from them. Where there is no rivalry, there can be no grounds for obstructions or restraints, and as long as the proper staple of each kingdom is pursued in each, without encroaching on the other, both may

' be consistently encouraged. Hence we are se-
 ' cure of a demand for all our linens, and may,
 ' as we improve in the genuine business of our
 ' people, depend upon a market always equal
 ' to the highest sale that we can make.

' In the third particular, the cheapness of ma-
 ' terials, we have greatly the advantage of any
 ' other manufacture. The improvements which
 ' flax may receive from labour, are hardly to
 ' be limited. It is of all materials the most pliant
 ' and obedient to the artist, capable of being
 ' wrought to any fineness and consequently
 ' rais'd to any price. Its value in the field is
 ' trifling, and whatever more it may be sold
 ' for, when it comes from the hackle, the wheel,
 ' the loom, or the cushion, is all of it the price
 ' of labour. In the common staple of this coun-
 ' try, the additional value it receives from the
 ' many hands, it goes thro' before it comes out
 ' of the loom, is full six parts in seven of the
 ' total price; in other branches of the linen ma-
 ' nufacture, the proportion rises to a degree,
 ' which can hardly be conceived: certainly no
 ' less than of one hundred, perhaps, upon an
 ' exact computation of many hundreds to one.
 ' A stone of flax, the original price of which,
 ' before it has undergone any change from la-
 ' bour, is only two and six-pence, may be drawn
 ' into threads of different finenesses gradually

WEEKLY OBSERVATIONS. 35

‘ encreasing in value from one penny to four
 ‘ pounds an ounce, of each of these it will af-
 ‘ ford some ounces, two at least of the finest
 ‘ staple, and of every other more, in proportion
 ‘ to its coarseness; till at last the flax will yield
 ‘ no longer. Now upon a moderate compu-
 ‘ tation, the value of these several ounces of
 ‘ thread, cannot be less upon the whole, than
 ‘ ten or twelve pounds, and consequently, the
 ‘ proportion between the first cost of the un-
 ‘ manufactur’d flax, and the sale of it in thread
 ‘ is as that of 1 to 80.

‘ Were it proper to attend the thread in its
 ‘ further progress, through the several changes
 ‘ it may undergo on the cushion, or in the loom,
 ‘ the proportion would be found to rise a great
 ‘ deal higher, and the prime cost of the material
 ‘ be absorb’d and lost, and of no account in the
 ‘ sum total: but as a calculation of this kind
 ‘ would be of little use, I shall at present wave
 ‘ it, and only conclude in general, that the linen
 ‘ manufacture has plainly the advantage of all
 ‘ others, in the cheapness of materials, and is
 ‘ for that reason, as well as those already men-
 ‘ tioned, a most valuable staple.

‘ I must leave it to you, gentlemen, to press
 ‘ the consequences of these plain facts upon
 ‘ your readers. You are best judges, how far it
 ‘ is the interest of this nation, that our manu-

'facturers apply themselves to the finer kinds
 'of linen goods; in my private opinion we are
 'not ripe for them; but, however that be, it is
 'certainly a great advantage to deal in a com-
 'modity, which as our numbers and our skill
 'encrease, is capable of unlimited improve-
 'ments. I shall add, that even in coarser kinds,
 'sufficient encouragement ariseth from the con-
 'siderations I have presumed to send you, to
 'engage every lover of his country to promote
 'the linen trade among us to the utmost of his
 'power. If my mite can be of service, I am
 'more than paid for the trouble of laying these
 'hints together. I had no other end in doing
 'so, than to put my countrymen upon useful
 'thoughts, and to assure you, gentlemen, of
 'my best wishes, for the success of your gene-
 'rous intentions.

I am, &c.

We should be guilty of ingratitude did we
 dismiss the reader without mentioning an ad-
 ditional advantage in our staple, which we owe
 to the favour of Great Britain, and has unwa-
 rily been overlook'd by our ingenious corres-
 pondent; Irish linens are imported into Eng-
 land duty free; while those of other countries
 are loaded with a considerable impost. We can
 therefore undersell them, though we did not

WEEKLY OBSERVATIONS. 37

underwork them, and without distressing the manufacturer at home, keep the market entirely in our hands.

To conclude, and to draw a general inference from this and the last paper; the favourable circumstances of our trade from the natural produce of our soil, and the advantage of a staple manufacture, for which we have a ready market, and a great demand, invite us at the easy rate of a little pains and industry to be a rich, flourishing, and prosperous nation: our other choice is indolence and misery, and between these two there is no medium: one part of the alternative we must necessarily make our option; we may be *rich* whenever we are diligent, and till we resolve to be so, we must be contented to be *poor*!

M.

N^o. VIII. *Tuesday, Febr. the 22d, 1736-7.*

THE DUBLIN SOCIETY have thought it necessary to make their first addresses to gentlemen, who have the interest and welfare of their country at heart: and to lay before them the unhappy condition under which it labours, in order to raise and cultivate a spirit of industry and improvement, as the most probable way to render us a flourishing people.

D

General observations have only a tendency to rouse us from our supineness and indolence; but will never alone recover us from our sinking state, without particular instructions how and where to amend what has been amiss. We flatter ourselves, that many amongst us would immediately apply to various kinds of improvement, were they but instructed how to conduct them in the best manner, and with the least expence. For this reason we shall immediately proceed to the consideration of particular branches of husbandry and other useful arts: and as the linen manufacture is of the utmost importance to this kingdom, we are much obliged to a gentleman of this SOCIETY, who has furnished us with his observations upon that useful subject.

This kingdom, no doubt, is much indebted to some other gentlemen, who have been at considerable pains in collecting instructions upon this head; but their generous designs have been less successful than could be wish'd, by their receiving wrong informations from persons, who, were either incapable of making proper enquiries, when sent abroad at the public charge, or, perhaps had cunning enough to conceal their acquired knowledge, in order to serve their private interest at the public expence: and hence it is, that the observations, we are about

to communicate, differ so widely from any before published upon this subject: the one depended upon the information of tradesmen, foreign merchants, and others, who all had ends of their own to serve; These are the result of a proper inquiry made upon the spot, by a disinterested person. We mention these circumstances only, that the following instructions may have their full weight and proper influence: they are all deduced from facts, which the author of these letters carefully examin'd, and whereof he was a frequent eye-witness, during his residence in Holland and Flanders: and his station in life, and relation to this country, set him above being influenced by little private views; we can therefore recommend his essays with an entire confidence, and promise considerable success to those who will be directed by them.

GENTLEMEN,

I Heartily approve of the design you have engaged in, and as every lover of his country ought to contribute all in his power to promote it, I shall, with the greatest alacrity, in this and some subsequent letters, communicate to you some observations on several branches of the linen manufacture, which I apprehend may be of use to this kingdom.

‘ The choice of proper soil is of very great
 ‘ importance in the raising of flax and flax-seed,
 ‘ and hitherto not sufficiently understood in Ire-
 ‘ land. The gentlemen, who drew up the in-
 ‘ structions heretofore publish’d, recommended
 ‘ dry sheep-walks and a light soil; this I conceive
 ‘ is a mistake, and shall therefore endeavour to
 ‘ correct it.

‘ It is true, that a gravelly, sandy, or light
 ‘ soil, produces fine flax; but then, it is in a
 ‘ small quantity; and the seed degenerates the
 ‘ first or second year at farthest: whilst a deep,
 ‘ stiff, moist clayey soil, under proper tillage,
 ‘ produces the best flax-seed, and a much larger
 ‘ quantity of flax. I am the forwarder to assert
 ‘ this, since I know that the Dutch, whose great
 ‘ success in the linen trade is a strong proof of
 ‘ their superior knowledge, scarce sow any flax-
 ‘ seed in the province of Holland, because it is a
 ‘ light sandy soil; but raise as good flax-seed
 ‘ and flax as any in Europe, in the deep, wet,
 ‘ heavy, stiff, clayey grounds in the province of
 ‘ Zealand. This is so true, that the flax-seed
 ‘ rais’d there always yields a higher price, and
 ‘ is constantly preferred to any seed imported
 ‘ from the Baltic. The Dutch do indeed import
 ‘ flax-seed from Riga, but not, as is generally
 ‘ said, because their own degenerates: they im-
 ‘ port it as merchants only, and purely to sup-

‘ ply the necessities of other sandy countries, as
 ‘ part of Germany, and most of the Seventeen
 ‘ Provinces: but had they a sufficient quantity
 ‘ of clayey soil, as that in Zealand, for raising
 ‘ seed answerable to this great demand, they
 ‘ would never import a grain.

‘ By this I would not be thought entirely to
 ‘ discredit the use of other soils. Clay is certain-
 ‘ ly the best; and all grounds good in propor-
 ‘ tion to the quantity of this ingredient in their
 ‘ composition: however, lighter soils, particu-
 ‘ larly loams, may be sown with flax-seed with
 ‘ advantage. The flax, as has been observ’d al-
 ‘ ready, is the finer; and we may sometimes
 ‘ have occasion for the finest: and besides, by
 ‘ varying our soils, we may be able so to change
 ‘ our seed, as always to be provided with the
 ‘ best from our own lands.

‘ I have been more particular upon this head,
 ‘ than at first view might appear necessary, be-
 ‘ cause it has been much insisted on, that Ire-
 ‘ land must always depend upon foreign mar-
 ‘ kets for flax-seed, which is the very founda-
 ‘ tion of our staple manufacture. I should be
 ‘ very sorry this was the state of our case: but
 ‘ it is so far otherwise, that I am persuaded, e-
 ‘ very gentleman who seriously attends to the
 ‘ facts above related, and considers the great va-
 ‘ riety of soils, and every one of them good in

' their kind, particularly, the large veins of rich
 ' loam, and great tracts of deep heavy ground
 ' to be found in different parts of this kingdom;
 ' I say, every gentleman who considers this will
 ' surely agree with me, that did we make the at-
 ' tempt in good earnest, it is scarcely possible
 ' we should fail of success. Nay, I make no
 ' doubt, but that, in a short time, we should be
 ' able to raise abundantly more than would
 ' supply ourselves; and have it in our power
 ' to furnish England and other countries with
 ' great part of what they annually import, to
 ' serve their oyl-mills and other purposes.

I am, &c.

R. W. M.

N^o. IX. *Tuesday, March the 1st. 1736-7.*

WE shall make no apology for publishing
 this second letter on flax husbandry,
 without any introduction, but barely acquaint
 the reader, that it comes from the same hand
 which obliged us with the last.

GENTLEMEN,

' I Have already given you a short account of
 ' the soils I would recommend for the cul-
 ' ture of flax and flax-feed; and shall now pro-

‘ceed to inform you of the manner, in which,
 ‘I judge, the ground ought to be dressed and
 ‘tilled, previous to its being sown. And, in or-
 ‘der to this, I shall beg leave to point out to you
 ‘the method that is practised in Zealand and
 ‘Flanders, and to intersperse some remarks u-
 ‘pon it, which may be of service to ourselves.

‘I have not many things to observe in relati-
 ‘on to manures: the Dutch use dung and ashes,
 ‘and sometimes human ordure in smaller plots
 ‘of ground well fallow’d. We have, besides
 ‘the former, marle, lime, mooring, and wreck,
 ‘with several others, which are all, in different
 ‘soils, very good for flax, and some of them,
 ‘perhaps, more valuable than dung. Dung, if
 ‘not sufficiently old and rotten, is apt to throw
 ‘up weeds in great quantity, and thereby not
 ‘only increases the expence of weeding, but
 ‘besides, injures the flax: whilst marle, lime,
 ‘and sea-wreck are free from this inconvenien-
 ‘cy, and preferable upon that account. This
 ‘particular is of great moment, and should al-
 ‘ways be attended to by the husbandman, in
 ‘the choice of his manures: weeds are destruc-
 ‘tive to all crops, but are so especially to flax,
 ‘which suffers greatly from them, both in its
 ‘goodness and its quantity.

‘In the tillage of the ground I shall be more
 ‘minute, because I am afraid there lye some

44 THE DUBLIN SOCIETY'S

‘ prejudices against the method I design to re-
 ‘ commend, which nothing can so effectually re-
 ‘ move, as an exact account of the Dutch and
 ‘ Flemish husbandry in this particular.

‘ In Zealand, where the lands are such as I
 ‘ think best for flax, deep, stiff, wet and clayey;
 ‘ they take two different methods to bring them
 ‘ into proper order. They either give ley
 ‘ grounds, three, four or more ploughings,
 ‘ with a summer fallowing; or, prepare them
 ‘ for the flax by preceding crops in the follow-
 ‘ ing manner: After proper dunging, and two
 ‘ or more ploughings, they take a crop of corn
 ‘ off their lands; the next year they plant them
 ‘ with madder, which remains two years in the
 ‘ ground; and the fourth year, they sow flax
 ‘ in it. By these means the ground is well broke:
 ‘ for, besides the two ploughings for the corn-
 ‘ crop, and the natural fermentation of the
 ‘ dung, with several additional ploughings some-
 ‘ times five bestowed upon the madder, toge-
 ‘ ther with many more to earth it up as it grows;
 ‘ there is after these the digging of the ground
 ‘ to take it up: all which reduce the soil to such
 ‘ a degree of fineness, as, I believe, is seldom e-
 ‘ quall’d in this country.

‘ Our farmers will be apt to imagine, that
 ‘ land prepar’d in this manner, would answer
 ‘ any purposes of husbandry; nevertheless, the

Zealanders themselves prefer the former method of fallowing and frequent ploughing as the best, to raise a valuable crop of flax. The clinging together of the clay, in the two years that the madder stands upon it, and the quantity of nourishment drawn off by that plant, leave even those rich and well till'd lands, poorer than they would chuse to have them for their flax: 'tis only from the great benefit they receive by planting madder, that they are led into the latter practice, which, upon the whole, turns to a good account; though, as far as the flax alone is concerned, 'tis not equal to the former.

' To confirm what I have now advanced, 'tis observable, that in those parts of Flanders, where they have veins of clay, as particularly about Courtray, they sow their flax upon ley grounds immediately after a summer and winter fallow: as they do not deal in madder, flax is their first crop, and they prepare the soil for it, by many successive ploughings. Even in the driest and lightest soils, which are capable of bearing flax, as are those about Mechlin, Antwerp, Ghent and Bruges, and, indeed, most parts of Flanders, they think three ploughings necessary, and never sow their flax without so many at the least, and a summer fallowing.

' We are told, that in Ireland good crops of
 ' flax have been had from one ploughing on ley
 ' grounds: for my own part, I much doubt,
 ' if ever we have had what would be esteemed
 ' a good acre of flax in Zealand or Flanders;
 ' I declare I never could see one: and I take
 ' the reason to proceed from our ignorance in
 ' the choice of proper soil, and negligence in
 ' giving it the proper tillage: indeed, were I to
 ' give my opinion freely, I think we have hi-
 ' therto been greatly defective in almost all the
 ' branches of husbandry; particularly, we have
 ' till'd our lands but superficially before they
 ' have been sown. Our grounds designed for
 ' wheat have not been labour'd as those in
 ' neighbouring countries generally are, and our
 ' crops have been proportionably small: ne-
 ' vertheless, even upon them, there has been
 ' more expence and pains bestowed than have
 ' been allowed the ground laid out for flax:
 ' Surely, it is time to rouse ourselves from this
 ' inactive state! Shall we, who almost depend
 ' entirely on the linen manufacture, indulge
 ' our sloth and indolence at so dear a rate, and
 ' neglect the tilling of our lands in a proper,
 ' though somewhat more laborious, manner,
 ' when, not only the public welfare, would be
 ' promoted by it, but the private advantage and
 ' profit arising from flax and flax-seed, would

WEEKLY OBSERVATIONS. 47

so vastly exceed what may be expected from any other harvest. No farmer would sow wheat in the careless manner, in which we have hitherto sown flax, and expect a tolerable crop; and certainly flax will bear the expence of many ploughings and fallowing much better than either wheat or barley.



I am, &c.

R. W. M.

N^o. X. *Tuesday, March the 8th, 1736-7.*

WE think our selves under particular obligations to the gentlemen, who have favour'd us with their ingenious and useful remarks upon several parts of husbandry. We hope they will forgive us, that we have not, as yet, taken any public notice of their letters; and are satisfy'd, they will agree with us, that nothing ought to interrupt the attention of the public on a subject of so great importance to this country, as that which we are now engaged in: we shall therefore, proceed to present our readers with a third letter on the linen manufacture.

GENTLEMEN,

‘ **W**HEN the land is brought into proper
‘ order, by the tillage described in my
‘ last letter, the husbandman’s next care must
‘ be, to fit it for the seed. This is done in Zea-
‘ land, by laying it out in broad, flat, ridges,
‘ divided by small trenches. The ridges are ge-
‘ nerally fifty, sixty, nay sometimes seventy feet
‘ broad, and the trenches two or three feet deep,
‘ and a foot and an half wide. By these means,
‘ the lands are kept in a proper degree of moi-
‘ sture; the broad, flat ridges, retain enough to
‘ preserve them from growing dry, and the
‘ trenches carry off whatever is superfluous.
‘ This practice, I beg leave, earnestly to re-
‘ commend; and, by the time our husband-
‘ men have try’d it, I am bold to say, they will
‘ not find that danger in wet clays, which they
‘ apprehend from them. The trenches will car-
‘ ry off all that water, which might scald, or o-
‘ therwise prejudice the flax, and when that is
‘ done, the remaining moisture, which in high
‘ round ridges is too soon exhausted, is of ab-
‘ solute necessity to secure a valuable crop.
‘ The Flemish farmers are so thoroughly con-
‘ vinced of this, that in their light and drier
‘ soils, they make no trenches, but commonly
‘ lay down whole fields, as flat and even as a

' bowling-green, and this in order to retain all
 ' the moisture they can get, and thereby protect
 ' their crop from the dryness and heat of sum-
 ' mer. I have now finish'd what I think necessary
 ' to be said, concerning the choice of soils, and
 ' the manner of preparing them for flax. Upon
 ' the whole, there is no room to doubt, that
 ' were the method I have pointed at, diligently
 ' pursued, the succeeding profit and advantage,
 ' would abundantly reward all the additional
 ' labour and expence of the farmer in this ar-
 ' ticle.

' I proceed at present to give you my thoughts
 ' upon the nature and properties of good flax-
 ' seed, and the time and manner of sowing it.
 ' Nothing is plainer, than that the farmer can-
 ' not be too nice in the choice of his seed, since
 ' the value of his crop must chiefly depend u-
 ' pon its goodness. In general, the shortest,
 ' plumpest, thickest, oyliest, heaviest seed, of a
 ' bright brown colour, is esteemed the best.
 ' The Dutch boor is very exact, in examining
 ' these several qualities, and makes his trials in
 ' the following manner. In order to discover
 ' its thickness, he takes a large handful, and
 ' squeezes it, until the edges appear plainly be-
 ' tween his finger and thumb; for it is entirely
 ' from the edges, he forms his judgment in that
 ' particular. To try its weight, he throws a

‘ handful into a glass of water; if it sinks soon,
‘ he is sure it is heavy and good; if otherwise,
‘ he judges it unfit for his purpose. To examine
‘ its oyliness, he throws a quantity into the fire,
‘ if it blaze soon, and crackle much, he thinks
‘ he may depend upon it. After all, he some-
‘ times sows it in a hot-bed, and in short, leaves
‘ no method untry’d, which will ensure him
‘ that his seed is of the best kind.

‘ I have only mentioned these minute circum-
‘ stances, to show how curious we ought to be
‘ in the choice of our seed.

‘ What I have now to add, is an advice of
‘ great importance to all husbandmen, and par-
‘ ticularly so to the flax-farmer; namely, not to
‘ depend on a succession of good seed from the
‘ same soil. The best clays will not preserve the
‘ seed from degenerating by degrees, if it be
‘ sown for any considerable time on the same
‘ kind of soil, from which it has been sav’d. It
‘ looseth every where something of its goodness
‘ by that management; and tho’ less in clays,
‘ than in any other ground, yet even in those it
‘ will finally decay. For that reason it is neces-
‘ sary in all soils, to change the seed, and the
‘ more frequently it is done, the better; the
‘ common rule in this case is to buy from lighter
‘ grounds, to sow on clays, and to buy from
‘ clayey soils to sow on lighter grounds, and

' the rule well understood, is undoubtedly a
 ' good one: but as I am perfectly convinc'd
 ' that light grounds do not afford good seed, I
 ' must beg leave to explain the rule at large,
 ' and prevent all mistakes about it. Where the
 ' farmer intends to raise a good crop of flax-
 ' seed, he must avoid light, dry, and sandy
 ' grounds. They are never to be us'd with any
 ' other purpose, than to procure fine flax, and
 ' always disappoint the farmer when he hopes
 ' for good seed from them. 'Tis not therefore
 ' those light lands that can be depended on for
 ' change. The farmer, who expects good seed,
 ' must confine himself to clays of different sorts,
 ' which will afford sufficient room for change.
 ' The seed rais'd in the stiffer kind will be best
 ' sown on the looser, and the mellow, which
 ' come nearest to a loam, and the produce of
 ' those again, will serve for proper seed on the
 ' stiffest and the deepest; the smallest variation
 ' in the nature of the soil is sufficient to preserve
 ' the seed; and no body need be inform'd, that
 ' clays differ much from one another. In Ire-
 ' land we have them almost of all kinds; and
 ' therefore can be under no temptation to have
 ' recourse to lighter soils, which never improve
 ' the seed; but on the contrary, constantly im-
 ' pair it. I have been the more particular on this
 ' point, because the common prejudices enter-

'tain'd in this country again, clays appear to
 'me of very pernicious consequence. They so
 'materially affect our linen trade, that no pains
 'can be bestow'd to more advantage, than those
 'which are directed to remove them. I shall
 'therefore add, to what I have hitherto obser-
 'ved from the practice of other countries, a re-
 'markable instance, of the usefulness of clayey
 'soils, in this kingdom. 'Tis known that the
 'Corcus lands in the county of Limerick, are
 'deep strong clays: an experiment was made
 'some time ago to determine what effect they
 'would have upon decay'd seed. In order to
 'this a barrel of the most degenerate flax-seed
 'that could be got in the north, was carried to
 'Munster, and sown in those lands; there it re-
 'covered, and produced very good flax; the
 'seed return'd by those rich stiff clays, was as
 'good as could be us'd, and improv'd beyond
 'all expectation; insomuch, that the seed sent
 'back to the north, and again sown there, af-
 'forded as good flax and flax-seed as any from
 'abroad. * The fact is notorious, and was com-

* This experiment proves that we may have good seed
 of our own; as a confirmation of it, 'twill be proper to in-
 form the reader, That the gentlemen of the *Society* sow'd e-
 qual quantities of four different kinds of seed, the best that
 they could get of each, in the same land and with the same
 culture; Plantation seed, Riga, Dutch, and Irish seed; and
 that the crop produc'd by that of our own growth was con-
 siderably preferable to the rest.

‘municated to the public by another hand, and
 ‘the consequence, methinks, as obvious, that
 ‘the deep clay soils are the best for flax-seed.

‘I shall conclude this letter, by observing,
 ‘that since the choice of seed is a point of the
 ‘highest moment, ’tis a manifest absurdity to
 ‘depend upon foreign markets. ’Tis not to be
 ‘expected that the Dutch, or any other nation,
 ‘will deprive themselves of their best seed; we
 ‘must be satisfy’d with the refuse of their flax-
 ‘crops, ’till we take care to raise better of our
 ‘own. Add to this, that since all seed is not e-
 ‘qually fitted to all soils, we are under an abso-
 ‘lute necessity of raising seed among ourselves;
 ‘for the countryman, who gets his seed from
 ‘foreign countries, can never be assured of the
 ‘particular kind of soil, where it was raised, and
 ‘of consequence, runs a considerable risque, of
 ‘being disappointed in his crop; whereas, did
 ‘we heartily engage in sowing flax-seed, in the
 ‘several parts of Ireland, which are proper for
 ‘it, the farmer might depend upon his seed, a-
 ‘dapt it to his soil, and with a little care, secure
 ‘a certain crop.’

I am, &c.

R. W. M..

N^o. XI. *Tuesday, March the 15th, 1736-7.*

THE following letter comes from the same hand with those already publish'd on the culture of flax, and requires no introduction.

GENTLEMEN,

THE next article to be considered by the flax-farmer, is the quantity of seed which he ought to sow. And here it will be proper to observe, that there will be always a remarkable difference in the produce, in proportion to the different quantities which are sown. For, should a smaller parcel of good seed be made use of, it will yield a plentiful crop of good seed and strong flax: but should the farmer sow a larger quantity of the same goodness, his flax would indeed be finer, and the increase great, but then his seed would be much less valuable. The Dutch, who are not at all apprehensive of wanting seed, generally practise the latter method. But as their case differs widely from ours, their manufacture being arriv'd to maturity, ours in its infant state, what may be wise in them, may be imprudent in us: were I therefore to advise, I should chuse to recommend the former method, until we had brought our seed to an e-

' equal degree of perfection and plenty. Upon
 ' the whole, a great deal must be referr'd to the
 ' discretion of the farmer, and an allowance
 ' made for the difference of soils equally well
 ' laboured; for a good soil will cherish a large
 ' quantity of seed, and afford it all that nutri-
 ' ment which is necessary to bring both seed and
 ' flax to perfection; whilst a like portion of
 ' seed would dwindle and starve in a hungry
 ' soil, and at last, return a miserable crop. As
 ' to the particular quantity of seed, necessary
 ' for a determinate portion of land, I shall only
 ' observe, that from three to four bushels, * will
 ' generally suffice for an Irish acre, which by the
 ' best computation I could make, answers pretty
 ' near to the practice in Holland and Flanders.

' Every flax-farmer, I believe, is sufficiently
 ' apprized, that good weather and a warm sea-
 ' son, are very necessary for saving flax-feed, and
 ' watering and grassing flax: and yet we do not
 ' seem to have sufficiently attended to this par-
 ' ticular in Ireland, otherwise we should not, as
 ' is generally done, defer the sowing of flax-
 ' seed until the spring is so very far advanc'd.

* The gentlemen of the *Society*, sow'd different quantities
 of seed in the same land, from two quarts to half a pint per
 acre, and they found that the quantity which afforded the
 best crop answered very nearly to four bushels; the experi-
 ment shall be repeated more exactly the next season, and the
 result communicated to the public.

' In order to rectify this error, it would be ad-
 ' viseable, to sow the seed the first good season
 ' in March, for then in all probability, it will
 ' be ripe the latter end of June, or beginning of
 ' July; and the farmer by these means, will have
 ' time enough before him, for the purposes a-
 ' bove-mentioned. If this method is pursued,
 ' another considerable advantage will be gained,
 ' a good crop of turnips may be had upon those
 ' flax-grounds, that very season, which would
 ' otherwise continue waste and useless the re-
 ' mainder of the year.

' Since I am engag'd in giving directions for
 ' sowing of flax, I hope I shall be forgiven a
 ' short digression, which may be very useful to the
 ' farmer; when he designs to lay down his
 ' lands, he may safely sow clover or other grass-
 ' seeds, a few days after his flax-seed. The clo-
 ' ver is so far from prejudicing flax, that it is
 ' observed to be of remarkable service to it. It
 ' is probable, that it preserves the dew and rain
 ' about its roots, and shelters the ground a-
 ' round them, from the heat of the sun; but,
 ' be that the cause or not, long experience has
 ' demonstrated, that they thrive perfectly well
 ' together, the clover producing a good crop of
 ' grass soon after the flax is pull'd. This me-
 ' thod is constantly practis'd in Holland and
 ' Flanders with good success, and therefore I

' can recommend the use of it amongst our
' selves.

' I have very little to observe about the man-
' ner of sowing flax-seed, I shall just take notice,
' that the seeds-man must go up the ridge in a
' straight line, and sow with his right hand, and
' then return in the same path, and sow with his
' left hand; for it is of moment that he should
' sow evenly. Some days after this, if he intends
' to lay down his grounds, he must sow his grass-
' seeds, and cover them by bush-harrowing and
' rolling; the manner of doing which is so well
' known already, that I need not enlarge upon
' it. For the same reason, I need say little upon
' weeding the flax: it must be done at the time
' when it is between two and five inches high;
' the treading upon it with the heels of shoes
' will prejudice the flax, but sitting upon it will
' do it no harm.

' I now come to the consideration of an article
of the greatest consequence to the linen ma-
nufacture, namely, the proper season of pul-
ling the flax. And here, gentlemen, you must
bear with me if I enlarge with some warmth
upon this subject; I have prejudices to en-
counter as pernicious as they unhappily are
common, and which have so visible a tendency
to defeat all rational attempts to establish the
linen manufacture, and make us a flourishing

‘ people, that it is not possible to speak of them
‘ without indignation. He does not love his
‘ country who can without more than ordinary
‘ concern see a destructive practice obstinately
‘ adher’d to, and industriously supported against
‘ the plainest evidence, and the concurring tes-
‘ timony of reason and experience. If warmth
‘ is at any time becoming, ’tis certainly where
‘ there is a public and a considerable interest at
‘ stake; and I will be bold to say, that few things
‘ can equally prejudice this kingdom as the per-
‘ verse mischievous custom of pulling our flax
‘ too green. ’Tis unaccountable infatuation in
‘ our farmers, purposedly, and with their eyes
‘ open, to throw away a valuable portion of
‘ their crop, and after repeated warnings, in the
‘ single article of seed, industriously deprive
‘ themselves of a return of eight or ten pounds
‘ Sterl. from every acre that they sow. Nothing
‘ but the prevalency of it could make us over-
‘ look so glaring an absurdity; and were he not
‘ countenanced by numbers, a man that flings
‘ away his own, and buys foreign seed at a dear
‘ rate, would be hooted thro’ the country. ’Tis
‘ common, and therefore only ’tis not wonder’d
‘ at; but for that very reason, it becomes more
‘ mischievous, and a matter of general concern.
‘ I shall not presume to direct the legislature;
‘ but I cannot conceal my wishes and my hopes,

that they may, at a proper time, think this pernicious practice well deserves their notice. Where argument and persuasion have been tried without success, laws and penalties must be call'd in to secure the public good, and I believe, a clause to prohibit the pulling of green flax, would as effectually advance the interest of this kingdom, as any law that has yet been made relating to the linen manufacture.

In the mean time, as I would willingly persuade my self that all among us are not resolv'd against conviction, I shall desire those, who are willing to hear reason, to reflect with seriousness on the unhappy circumstances we lie under from the perverseness of our farmers. We are dependent not only upon foreign markets, but on the winds and waves for the fundamental part, the very *primum*, of our manufacture. Every year the trade, and consequently the support of the whole nation, is, in one main branch of it, exposed to all the hazards of the sea; we lie at the mercy of it in a point of infinite importance, and whether our flax-dressers, our spinners, our weavers and our bleachers shall be useful to their country by their labour, or become a burthen to it, and beg their bread about the streets, depends in a great measure upon that treacherous element. This very season Ireland has

‘ lost above five thousand barrels of flax-seed,
‘ upon that fearful chance which every year
‘ must run till we grow wiser, and learn to pro-
‘ vide ourselves with a certain and independent
‘ supply of good seed from our own lands.
‘ This consideration alone is of weight suffi-
‘ cient, one would think, to bring about a re-
‘ formation among those who are capable of
‘ reflection; were it true that the flax is in some
‘ degree impair’d by standing till the seed is ripe,
‘ it would be, notwithstanding, a wild and in-
‘ consistent conduct, to run the hazard of the
‘ whole, to avoid a single inconvenience in our
‘ staple; but the case in fact is otherwise—The
‘ flax becomes more valuable, both from its
‘ quantity and quality by being allowed to ri-
‘ pen. Upon a moderate computation, the far-
‘ mer, who pulls green, loseth besides his seed,
‘ more than half of his flax-crop; his weak
‘ green flax breaks under the dressing, runs to
‘ tow, and disappoints him of his quantity: and
‘ what is still of more importance, the little that
‘ he has is every way inferior to what it would
‘ have been had he suffer’d it to stand till it were
‘ ripe. In point of strength, no man can be so
‘ blind, as to question the truth of this assertion.
‘ Maturity is full as requisite to make the fibres
‘ strong in plants, as it is in animals; and it were
‘ as good philosophy, to expect vigour and ro-

' bustness from the gristles of a child, as to hope
 ' for strength and toughness in the fibres of green
 ' flax. In respect to fineness, I know our ma-
 ' nufacturers will be against me, and give the
 ' preference to unripe flax, because it splits with
 ' little labour; but, if we may depend upon the
 ' practice of the Flemings, they are undoubt-
 ' edly mistaken. 'Tis the peculiar care of those
 ' experienced manufacturers, to let that stand
 ' longest, which they intend for the finest goods;
 ' they even venture the shedding of the seed, to
 ' have it as ripe as possible, when it is to be
 ' wrought up into the better kinds of their cam-
 ' brics, and their laces: and surely repeated trials
 ' would by this time have convinc'd them of their
 ' error, if ripe flax were as coarse and stubborn
 ' as we think it. I have not room to enlarge up-
 ' on this head at present, and therefore shall
 ' beg leave hereafter to resume the argument,
 ' and to show at large, that the ripest flax, as it
 ' is always the strongest, becomes also by proper
 ' dressings, both the finest and the softest.'

I am, &c.

R. W. M.

‘lost above five thousand barrells of flax-seed,
‘upon that fearful chance which every year
‘must run till we grow wiser, and learn to pro-
‘vide ourselves with a certain and independent
‘supply of good seed from our own lands.

‘This consideration alone is of weight suffi-
‘cient, one would think, to bring about a re-
‘formation among those who are capable of
‘reflection; were it true that the flax is in some
‘degree impair’d by standing till the seed is ripe,
‘it would be, notwithstanding, a wild and in-
‘consistent conduct, to run the hazard of the
‘whole, to avoid a single inconvenience in our
‘staple; but the case in fact is otherwise—The
‘flax becomes more valuable, both from its
‘quantity and quality by being allowed to ri-
‘pen. Upon a moderate computation, the far-
‘mer, who pulls green, loseth besides his seed,
‘more than half of his flax-crop; his weak
‘green flax breaks under the dressing, runs to
‘tow, and disappoints him of his quantity: and
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‘he has is every way inferior to what it would
‘have been had he suffer’d it to stand till it were
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‘blind, as to question the truth of this assertion.
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 ' brics, and their laces: and surely repeated trials
 ' would by this time have convinc'd them of their
 ' error, if ripe flax were as coarse and stubborn
 ' as we think it. I have not room to enlarge up-
 ' on this head at present, and therefore shall
 ' beg leave hereafter to resume the argument,
 ' and to show at large, that the ripest flax, as it
 ' is always the strongest, becomes also by proper
 ' dressings, both the finest and the softest.'

I am, &c.

R. W. M.

N^o XII. *Tuesday, March the 22d, 1736-7.*

THE following letter, from the same hand with several already publish'd, gives the SOCIETY an opportunity of showing their concern for the right information of the reader, in a way which puts it out of question. It seems that some facts, which we unwarily had built upon in our directions to the flax-farmer, are now contradicted by this ingenious correspondent. He denies that the Dutch and Flemings stack their flax unrippled; and condemns that practice, from the same principle by which we had been led to recommend it, the example of those experienced artists. This lays us under a necessity of owning we have been mistaken; a hard task to men who write from any other motive than the desire of being useful; but highly acceptable to us, who have no other view, than to spread beneficial knowledge, and prevent the ill effects of all errors universally, whether they be our own, or those of other people.

We have already given the reader an account of the reasons which prevail with us to rely, with the utmost confidence on this gentleman's information; and therefore no body can be surprized that we should so readily give up a fact

which he contradicts from his own knowledge. 'Tis not common to meet with a curious observer upon the customs of other nations, who had no other motive to encourage his inquiries, than the advantage of his native country; this circumstance gives an uncommon weight to his assertions, and makes his single testimony equivalent to that of thousands, who may be suspected of private, and self-interested views.

From the impossibility of procuring better, we have sometimes been obliged to proceed upon the latter kind of information: but we do assure the reader, that, if in any other case, it should appear hereafter, that we have been misled, we shall readily act the same honest part again, and deceive him only, while we are deceiv'd ourselves.

GENTLEMEN,

'TIS of so much importance to this kingdom, that our flax should not be pull'd too soon, that I could wish to add more particular directions to what has been already said upon this subject: but it is so nice a thing to describe colours, upon which the farmer's judgment must depend in a great measure, that, I am afraid, I must leave him mostly to his own experience, the best instructor in these cases. In general, when the field appears of a

‘ bright yellow, inclining a little to the lemon
‘ colour, ’tis time to try the seed of a few stalks,
‘ which, when arriv’d to its maturity, will be
‘ found firm and full, like that of other plants,
‘ and of a light brown colour. The Dutch wait
‘ till the boles or pods are ready to crack, and,
‘ in some of the ripest stalks, begin to open. Up-
‘ on the whole, the best direction, I can give,
‘ is to let your flax stand as long as is consistent
‘ with the safety of your seed: for, if that be
‘ once secured from shedding, your seed and
‘ flax will be the better.

‘ In the article of making flax in the field,
‘ the practice of Ireland differs so little from
‘ what is customary in Holland and Flanders,
‘ that I need not take up much time in giving
‘ directions upon that head. I would fain hope,
‘ that for the future, few will be so much their
‘ own enemies, as to pull their flax before it is
‘ fully ripe; and when it is so, I have already
‘ described: the farmer’s next business is to
‘ make it, which is done, by taking as much as
‘ he can easily grasp with both his hands, and
‘ gently laying it on the ground with the heads
‘ pointing southward: he then takes another
‘ handful, and lays it upon the former, not di-
‘ rectly a-cross but somewhat slanting, in order
‘ to keep the heads of the flax still exposed to
‘ the south, and this he repeats until he raises

' the heap a foot and a half high: by this dispo-
 ' sition, the flax receives the full benefit of the
 ' sun and air, and is preserved from the damage
 ' it would sustain by rain. * This is the method
 ' constantly practised in uncertain dropping sea-
 ' sons; but should the weather be settled and
 ' very good, and the farmer desirous of making
 ' his flax expeditiously, all he has to do, is to lay
 ' it in handfuls on the ground and turn it fre-
 ' quently, cautiously observing to keep the ends
 ' regular. If the weather continues favourable,
 ' twelve or fourteen days generally suffice for
 ' this part of the farmer's work: but if it be
 ' showry, the flax must lye in the little heaps
 ' before described, about eighteen or twenty
 ' days, and sometimes longer; until it be suffi-
 ' ciently made, and then it is bundled up for
 ' carriage.

' It has been recommended to our farmers in
 ' some instructions published with your appro-
 ' bation, and made a condition of their con-
 ' tracts with the linen-board, that they should
 ' stack the flax immediately from the field, and
 ' keep it unrippled in the stack until the begin-
 ' ning of December. This practice, I am afraid,

* If in this country where the winds are often violent,
 there should be any inconveniences in following the Dutch
 method strictly; the reader will find a different one recom-
 mended by another correspondent at the end of N^o 44.

' is attended with considerable inconveniences,
' and does not answer the good ends proposed
' by it: I shall therefore beg leave to offer my
' reasons against it here, and I hope it will be
' understood as a proof of my high regard for
' the SOCIETY, that I address them to you,
' gentlemen, who, I am satisfy'd, have the in-
' formation and good of the public principally
' at heart, and will chearfully encourage any
' thing which contributes to it, tho' it should
' unluckily run counter to some of your di-
' rections, published with the same design.

' As I have hitherto rested chiefly on the au-
' thority of the Dutch and Flemings, who must,
' from long experience, be supposed perfectly
' acquainted with every branch of the linen ma-
' nufacture, I should not presume to contradict
' the SOCIETY's directions, if I were not very
' sure, that I have those experienced artists on
' my side. From whatever hands you receiv'd
' your former informations, I must assure you,
' gentlemen, that upon a strict and particular
' enquiry, I found the fact quite otherwise. I
' saw no signs of stacking or housing unrippled
' flax in any part of Holland; and when I ask'd
' the question, I was always answer'd in the ne-
' gative. And indeed, I am surpriz'd how any
' one could be led into so unlikely a mistake, as
' to recommend stacking from their practice,

' since it is notorious, that in Holland the flax
 ' is never stack'd at all, either rippled or unrip-
 ' pled. I know no other way of accounting for
 ' an assertion so contrary to undoubted facts,
 ' than by supposing that the persons, on whose
 ' information you depended, have unwarily
 ' confounded two very different directions.
 ' 'Tis indeed the Dutch practice and advice not
 ' to separate the seed from the bole 'till some
 ' time after it is pull'd; but I am bold to say,
 ' that they neither delay rippling it themselves,
 ' nor advise doing so to others. The case, I have
 ' reason to think, is the same in all flax coun-
 ' tries. The seed we have from Riga has un-
 ' doubtedly not been stack'd: The concern of
 ' their magistrates to secure the reputation of
 ' their flax-seed, makes them exceedingly care-
 ' ful, when the foreign demands are answer'd,
 ' to call in the remaining seed of that season,
 ' and to keep it for the oyl-mills: we may there-
 ' fore be confident, that the seed we have from
 ' thence is that of the immediately preceding
 ' harvest, and by a necessary consequence, that
 ' it has not been stack'd. Were it otherwise,
 ' those northern seas are generally frozen so
 ' early in the year, that our ships must sail from
 ' thence unladen. Their seed could not be rip-
 ' pled, thresh'd and clean'd, and then brought a
 ' considerable way from the inland provinces of.

68 THE DUBLIN SOCIETY'S

‘Lithuania and Livonia to the coasts in time.

‘This letter is so long already, that I must
‘postpone all further considerations upon this
‘subject to the next opportunity.’

I am, &c.

R. W. M.



N^o XXX. *Tuesday, March the 29th, 1737.*

GENTLEMEN,

‘**A**S I have chiefly confin’d myself, in the
‘course of these letters to the use of ar-
‘guments drawn from the practice of other
‘countries; I shall not engage very far in those
‘of another kind to shew the disadvantages of
‘stacking the flax unrippled. I am indeed con-
‘vinc’d, and so will every one, I believe, who
‘seriously considers it, that the seed can receive
‘no benefit from a sapless dry stalk, which re-
‘tains no moisture, and consequently no nou-
‘rishment, if it has been made with proper care:
‘but as I have often wav’d considerations of
‘this kind, I hope to be excus’d by the more
‘curious observers upon nature, if I continue
‘to do so at present. There are arguments a-
‘gainst this practice more obvious to all capa-
‘cities, and for that very reason of more gene-
‘ral use; upon these I chuse to let the matter

WEEKLY OBSERVATIONS. 69

rest, and beg leave to insist upon each of them distinctly.

‘ The receipt inserted in the Society’s former instructions, to destroy vermin in the stacks of unrippled flax, is a sufficient proof that they were aware of an inconvenience in stacking the seed and flax together. They were sensible this practice would invite rats and mice to make their nests among the flax, and accordingly prescrib’d a remedy. I have not heard with what success it has been tried, but, I must beg leave to think, it would be a more prudent conduct to avoid the evil than to trust to an uncertain, and, at best, an imperfect cure: The vermin must make their way to the poison thro’ the flax, and cut and mangle it before they meet their bane, and therefore, notwithstanding all precautions, the farmer is visibly a sufferer by this method, and must lose a considerable portion of his flax. Should vermin come at his seed, when it is separated from the stalk, which however is more easily prevented since they have no concealments on the floor, the loss is only in the seed, whereas the damage in the stack falls also on the flax, and upon that account is considerably greater.

‘ There are other and greater disadvantages attend the stacking of our flax unrippled: the seed heats more easily in the stack than on the

' floor: the evil is not so soon discover'd: and
 ' the remedy attended with more labour and
 ' more cost. It is too obvious to be insisted on,
 ' that you run double hazards of pernicious
 ' damps when you have both stalks and seed to-
 ' gether: nor is it less notorious, that, notwith-
 ' standing all precautions, the heart of a large
 ' stack may be considerably damaged, before any
 ' signs of heat appear: whereas upon the floor
 ' they immediately betray themselves: and in
 ' the third particular, the disproportion is still
 ' plainer—A stack cannot be thrown without
 ' shedding a great deal of seed, nor rebuilt with-
 ' out considerable labour; whereas airing your
 ' boles upon the floor is done with little trouble,
 ' and almost at no expence. These are incon-
 ' veniences incident to this method in all sea-
 ' sons, and in unsettled weather they become
 ' intolerable; some harvests are so wet, that it
 ' is hardly possible perfectly to make the flax,
 ' and should the farmer at such times, be pre-
 ' possess'd with the necessity of stacking, he has
 ' scarce a single chance to save his crop. The
 ' least damp, which is then almost unavoidable,
 ' will heat his stack, which by the weight and
 ' pressure of a large quantity of flax and seed
 ' together, falls in too close to let in air; while
 ' on the contrary the seed ripped from the flax,
 ' but preserv'd in the pod, or bole, lies light and

‘hollow, and may therefore, tho’ it retain’d a
 ‘little moisture, be preserv’d from damage with-
 ‘out any considerable pains.

‘The delays which attend this practice afford
 ‘another and an unanswerable argument against
 ‘it. The watering of the flax is prevented for
 ‘one season, and consequently every other
 ‘branch of linen manufacture proportionably
 ‘retarded. Hence the benefit of a quick return,
 ‘one of the greatest encouragements to trade, is
 ‘lost in some degree to every person concerned
 ‘in our staple, and intirely so to the poor far-
 ‘mer. The sale of his flax and seed being de-
 ‘layed till January, comes too late to pay his
 ‘rent, and defray the necessary expence of pre-
 ‘paring his lands for the next crop: or should
 ‘he borrow to answer those demands, he must
 ‘pay an heavy interest for his own, which eats
 ‘out his little profit. Let us suppose a farmer
 ‘has twenty acres under flax, if the land be good
 ‘and well prepared, and the season favourable,
 ‘his crop at a moderate computation is worth
 ‘five hundred pounds, and consequently the
 ‘half year’s interest which he loseth, by bad ma-
 ‘nagement, amounts to fifteen pounds. Few
 ‘farmers can bear so considerable a drawback
 ‘upon their profit, and I can see no reason to
 ‘encourage them to do it. The only shadow
 ‘of an argument in favour of this method, is

' taken from a supposition that the seed is the
' better for it; and this grounded upon the far-
' mer's practice in his wheat, which he generally
' sows immediately from the flail: but, as it is
' impossible to assign any reason for this asserti-
' on from the nature of the thing, so the pre-
' sumption drawn from the practice of our hus-
' bandmen is intirely built on a mistake. 'Tis
' not from choice, but from necessity, that the
' farmer pursues that method; the sowing sea-
' son comes so close upon his harvest, that he
' has no time to spare; and if he will sow wheat
' at all, he must do it from the threshing floor:
' in other grains the case is different, and so also
' is the practice, and I never heard that any un-
' derstanding husbandman objected to seed of
' the same season from its being thresh'd too
' early. The seed therefore, by any thing that
' hitherto appears, is certainly not the worse for
' early rippling; and I must add, that the flax
' itself is undoubtedly much the better: for im-
' mediate watering, which cannot be done with-
' out immediate rippling, is of considerable im-
' portance; the bunn ferments with ease, before
' it has had time to harden; and the harle, by a
' necessary consequence, comes out the stronger
' and the finer. The sole design of watering
' flax is to rot the bunn, in some degree, that
' it may part more readily from the harle; and

' the sooner the flax can be brought into a pro-
 ' per state for that only end intended, 'tis cer-
 ' tainly so much the better. When it remains
 ' a considerable time in water, the harle itself
 ' ferments, suffers considerably in strength and
 ' softness, and at last will rot together with the
 ' bunn: too long watering therefore is evident-
 ' ly pernicious, and yet by stacking the flax un-
 ' rippled till the winter, is really unavoidable;
 ' the bunn, by lying so many months unwatered,
 ' becomes hard and tough, adheres strongly to
 ' the harle, and will not part from it without a
 ' long and violent fermentation, which tho' it
 ' be then indeed by bad management become ne-
 ' cessary, is however nothing the less destructive.

' I must add that, independently of this, au-
 ' tumn is the best watering season: the preced-
 ' ing summer's heat has then mellow'd and sof-
 ' ten'd the water; whereas in May, which is the
 ' time of year generally made use of by those
 ' that stack unrippled, it has hardly lost any
 ' thing of the harshness contracted in the win-
 ' ter.

' And now, Gentlemen, having gone thro'
 ' the several branches of flax-husbandry, I shall
 ' take my leave of the reader for a while. The
 ' observations I have by me upon flax-dressing
 ' are a subject by themselves; and as I could
 ' wish, for the interest of the manufacture, that

‘ flax-farming and flax-dressing were different
 ‘ employments, I chuse for that very reason to
 ‘ treat of each of them a-part.

‘ It would be a considerable satisfaction to
 ‘ me, if I could hope that what I have already
 ‘ said could be useful to my country: It has
 ‘ long given me great concern to see our flax-
 ‘ farmers afraid of using their best lands, deep
 ‘ and heavy clays, giving those they chuse a
 ‘ slight and superficial culture, losing their own
 ‘ seed while they imported that of other coun-
 ‘ tries, and spoiling their flax by keeping it un-
 ‘ watered all the winter: I have therefore set
 ‘ myself particularly against those errors; and
 ‘ if I shall find that I have done it with success, I
 ‘ shall think my pains abundantly rewarded.*’

I am, &c.

R. W. M.

* There have been many objections started against this letter, and many arguments offer'd to support the practice of stacking flax unrippled, which have reach'd the gentlemen of the society: but, as nothing has hitherto occur'd to them which has an equal appearance of reason with what the author of the letter has advanced, they think themselves oblig'd not to withdraw their approbation of it till something more material can be said against it. The practice of the Dutch, if the question is to be determined by precedents, is undeniably of greater weight than ours. If argument is to decide it, nothing appears more plausible than our correspon-

N^o XIV. *Tuesday, April the 5th, 1737.*

THE success of those excellent letters upon flax and flax-seed, which for some time past have entertained the reader, gives us great room to hope that there is a public spirit kindling among our countrymen. The example of our ingenious correspondent has rais'd in others an ambition to be useful, which has shew'd itself in several shapes, in the many congratulations, objections, queries, and essays upon different subjects which we have received since their appearance. Among these we shall select, at present, those which immediately relate to the culture of flax and flax-seed, and throw together in this paper such observations on that subject as will naturally arise from them. And here we must desire the reader to excuse the want of order and connection; queries and objections coming from several hands necessarily

dents reasoning. One way remains, that of regular experiments; and whenever gentlemen will afford us an opportunity, we shall readily communicate any exact and accurate trials on that subject, to be canvass'd by the readers. One caution only we shall beg leave to give them; They must prove that some benefit accrues either to the flax or seed, by being stack'd together, since it were plainly injudicious to recommend delays without some prospect of advantage.

want them, and we must follow as they lead us.

None of our correspondents have directly objected to the choice of clays, as the best flax lands; but many of them have proposed doubts and started difficulties worth considering, in relation to their culture.

Some have imagin'd, that laying them as flat as is directed, might obstruct the husbandman in another article of great importance, that of early sowing: but this suspicion seems to take its rise from a mistake; it was never recommended to lay the ridges broad and level during the winter season: the narrower and the higher they are then the better, the more expos'd to frost and sun and air, and consequently the more broken and more mellow'd. 'Tis only in the last plowing, and, as our correspondent has expressed himself, at the time the land is—*Fitting for the seed*, that the ground should be levelled to receive it.

As our clay lands differ in their situation from those in Zealand, which all lie upon a flat, whereas ours are often found on the declivity of hills, others seem to be afraid that the same culture will not suit them both. They are apprehensive that our clays lying on the sides of hills, were they reduced to the same tilth as the level clays in Zealand, would, in the winter-time, be robb'd of the best part of their substance, by the great

flow of water in their furrows: those little torrents which then fall with great force along the hill, washing down the richest and the finest of the mold.

The true answer to this objection is to assign a remedy, and teach the husbandman to remove an inconvenience which, in the common way of ploughing, constantly attends good tillage on the sides of rising ground. This may be done by horizontal ploughing. Instead of drawing his ridges as usual, up and down the hill, the farmer must lay them cross-wise to the descent, and, as near as possible, in lines parallel to the low grounds at bottom: by these means, the water falling upon the ridges is stopp'd by the next trenches, has no further progress down the hill, and loseth all its violence. We would not indeed advise the farmer to let it stagnate in those trenches, it would then soak into the ridge below it, drench the ground, and spoil his crop: but two trenches down the hill, one on each side of his field, will, if they be well drawn, and pretty deep, drain the ground sufficiently. The experiment has been tried by some members of this Society; and we may assure the farmer, from their knowledge, that the success surpassed their expectation. Before we conclude this paragraph, it may be useful to observe, that as this objection affects flax no further than it

does any other crop, which requires the same repeated ploughings, so the remedy prescribed becomes of general use, and will answer the same purposes in every branch of husbandry.

We could wish it were as easy to remove a third objection to the laborious tillage of flax grounds, recommended in our correspondent's letters. It is taken from the great distress and lamentable poverty of farmers in this country, where hardly one in twenty has the necessary means of executing our directions, however thoroughly convinced he may be of their expediency. This difficulty is indeed a great one and not to be got over without the ready and effectual concurrence of the landed interest in this kingdom. But if gentlemen of fortune would join with heart and hand in promoting the interest of their country, by which their private interest, in the end, must either stand or fall, their tenants might be easily enabled to pursue a method which, in a little time, would advance the linen staple to a height, where it will never arrive without it.—We shall add, in the words of a letter dated from port Neill, that till this spirit can be rais'd among the landlords—"The richer sort of farmers should forward such a practice; that from their experience they might prevail on others to imitate their prosperous beginnings."

WEEKLY OBSERVATIONS. 79

A gentleman, who has concealed both his name and his abode, objects to the same tillage from another principle. "I can't but think" (for we shall give his thoughts in his own words) "there is ground to apprehend, that if our flax in Ireland were sown upon such rich and well cultivated ground, it would only be in very favourable seasons that we could expect its coming to maturity. The rains we have in most summers would lay it flat before it came to be ripe, and ruin the crop both for flax and seed."

To this the answer is as short as it is obvious. Sow thin; and your crop will stand. No ground can be too good if the quantity of seed be proportioned to its richness, and whenever a crop fails upon strong and mellow soils, they are certainly over-burthen'd. The stem of every plant requires the free admission of the sun and air to strengthen it; when that fails, as it always must where the seed is thrown in without discretion, the stem wants its due consistency, yields to the least accession of foreign weight from rain, breaks at bottom, and so lodges to the utter ruin of the whole crop; whereas upon thin sowing, air, sun, and wind have free access to every plant, keep the stem dry and tough, able to recover with a spring when it is bent, and thereby to shake off the rain.

The culture of the flax-grounds is not the only point objected to. We have received a letter from Banbridge with the following apology for that destructive custom, pulling the flax green.

“ For the most part, when we have let our flax stand till it be ripe, it fires and turns brown. This peculiar kind of blight begins a fortnight or more before the flax is ripe; the bole fires first, and then the stalk, and when this happens, if the flax be not pull’d immediately, it becomes coarse and stubborn, runs to tow, and makes a spritty cloth; and this is so hard to whiten, that scarce any thing except the rub-boards will take out the sprit: besides, the firing kills the seed, so that it neither fills nor ripens after it.”

This is the apology, and perhaps the only one that can be made, for a practice so visibly pernicious: we are therefore greatly pleas’d, that the anonymous correspondent, before-mention’d, has afforded us a just reply in an article of his ingenious letter. It shews that a spirit of attention and inquiry is gaining ground among us, when we thus can set our correspondents in opposition to each other, and answer the objections of some by the observations of others.

That part of his letter which relates to this article stands thus: “ That clayey lands are the best for flax, will admit of no dispute among

WEEKLY OBSERVATIONS. 81

“ those who have any experience in this branch
 “ of agriculture. Light soils are subject to a dis-
 “ temper which the country people call firing,
 “ by which the flax, before it ripens, turns sud-
 “ denly of a reddish brown. This flax proves
 “ spritty in the cloth, and is not without great dif-
 “ ficulty brought to a good and even colour in
 “ the bleaching.” This observation fixes the evil
 on its proper cause; 'tis the wrong choice of soils,
 that lays the farmer open to these hazards, which
 the deep rich clays are not exposed to. Our cor-
 respondent adds, and with a great deal of reason,
 that, “ Weeding flax in a clay well prepared is
 “ but a small expence, to what it proves in a light
 “ loamy soil.” Which we have also added, as
 an additional argument, to recommend the
 choice of clays, and the proper culture of them.

We hope this gentleman will excuse the li-
 berty we have taken of parcelling out his letter
 in this manner. He has done the Society more
 honour, in expressing his sense of their perfor-
 mances, than they were willing to take to them-
 selves; and thereby laid them under a necessity
 of giving only abstracts of a letter, which did,
 otherwise, very well deserve to be published at
 full length.

There are still in that and other letters on
 the culture of flax-seed, many material obser-
 vations, which may, at a proper time, afford
 matter for another paper.

M.

N^o XV. *Tuesday, April the 12th, 1737.*

THE following letter concurs with those already published on the culture of flax and flax-seed, in recommending strong, rich and clayey grounds, and contains an ingenious illustration of that important point, drawn up with an immediate reference to the peculiar qualities of the several soils in Ireland. This circumstance will excuse us to the reader, for resuming a subject which we seemed to have dismissed; since it becomes a new one in some measure, by the new and useful light in which it is considered.

GENTLEMEN,

THE letters published in your papers, on the culture of flax and flax-seed, have, from the great success of them in Zealand, advis'd our husbandmen to the use of deep stiff clays, as the fittest lands for flax: this, in general, I take to be rational advice; but as the nature of our soil differs much from that of Zealand, and we have variety of loams which are not to be found there, I hope it may be useful to enlarge your directions on that head, and apply them more particularly to the circumstances of this kingdom.

WEEKLY OBSERVATIONS. 83

‘ According to some naturalists there are many sorts of soils, which differ from one another in their ingredients, weights, colours and consistencies; but to take in at present the most considerable differences only, I conceive that all earths may be conveniently reduced to two general principles, sand and clay; and from the different mixtures and proportions of those two ingredients, the great variety of soils easily accounted for. Under the class of sandy soils will be comprehended, not only mere sands, but all gravelly, stony, hazely, light loose soils, which do not hold water; and under clays, besides the stiffer kinds properly so called, marle, chalk, and all other binding soils, which naturally retain it.

‘ Neither sands nor clays are, separately taken, good vegetative soils: but when they are mixed in due proportion, they become rich loams and afford the best of crops; not indeed every crop indifferently, but according to the several distinct proportions of sand and clay which they contain, some one, and some another. Different plants require different degrees of stiffness, lightness, heat and moisture in the soil; and therefore a proper loam for one, may be highly improper for another.

‘ Those soils which incline most to sand, are readily exhausted; and afford little nourish-

34 THE DUBLIN SOCIETY'S

' ment. Sand itself, which is no more than a
' collection of small pebbles, can yield none,
' and the earth which is mix'd among it, when
' in a small proportion, can't supply the large
' demands of a weighty crop of vegetables.

' Clayey soils, on the contrary, are indeed
' nutritive all over, capable of being broke into
' the smallest particles, which become by their
' minuteness, the proper food of plants. But then
' they are apt to bind and cling, and in that state
' are as absolutely useless, as the very sands them-
' selves.

' These defects however different in their
' cause, are therefore much alike in their conse-
' quences, and, as I before affirmed, meer clays
' are, as well as meer sands, naturally unfit for
' vegetation.

' But however, there is a considerable diffe-
' rence between them. Sands are to all human
' art intirely irreclaimable without new making
' the whole soil by mixing it with clays, a me-
' thod commonly impracticable, and always, in
' a high degree, expensive; whereas the stiffest
' clays may be reduced into a tilth by labour,
' and the natural influence of frost and sun and
' air.

' Thus the dry sandy desarts of Africa and
' Asia will remain desarts while the world en-
' dures; whereas the deep stiff clays of Zealand

WEEKLY OBSERVATIONS. 85

are, by indefatigable industry, become rich and fertile soils.

'It is true indeed that in Egypt the soil is very sandy, and yet affords great quantities of corn and flax; insomuch that that country is now a granary to the neighbouring parts of the world, as it formerly was to the Romans; but this is owing to a natural advantage, which no art can imitate. The inundations of the Nile, carefully husbanded by the inhabitants, who prevent the total ebbing of the waters by receiving them in reservoirs, give those sandy plains all that fertility they have, and, without the excessive moisture with which they are drenched once a year, and the rich oily slime which the waters leave behind them, Egypt would be as barren as the neighbouring sands of Lybia.

'Tis our happiness that we have none of those sands in Ireland. Our lightest soils are gravels, of which we have several kinds, which gradually improve into loams of different consistencies, and end at last in clays. These gravels, clays and the intermediate loams, are all the soils we have: moors excepted, which are nothing else than loams drench'd and soak'd in water. Of these, I shall say little; if they were drain'd and duly till'd, they would fall under the head of loams; till they are so, they

H

' are useless and unprofitable: each of the other
' kinds, I shall speak to in their order.

' Gravelly soils are generally dry, shallow,
' hungry, skully, apt to be scorch'd up in a dry
' summer, and consequently not fit for flax.
' They may be usefully laid down in sheep-
' walks, the staple being shallow, and the grass
' sweet and short: but for flax, or any other
' weighty crop, they want both strength and
' moisture, without which neither flax, nor any
' other seed sown late in spring and upon the
' approach of summer, can well thrive.

' 'Tis true that in Livonia, Courland, and
' Muscovy, the soil is light and sandy; but it
' is a sandy loam mix'd with great quantities of
' clay, and very different from our gravels. Be-
' sides, these are covered with snow for five or
' six months in the winter, and when that melts
' in April, the soil becomes moist and rich; and
' to these constant snows, and the succeeding
' great heats of the sun, their fertility is owing:
' here where we have not this natural advan-
' tage, when there is a necessity of sowing them,
' the way of improving such gravels is to ma-
' nure them with marle, lime, mooring, or o-
' ther stuff, which may enrich the staple and
' keep it moist. This brings them into a kind of
' loam, of different goodness, according to the
' strength and quantity of the manure: but how-

ever, never equal to the natural loams or clays, and indeed never thoroughly fit for flax.

Clays are to be found in most parts of Ireland, they are naturally moist, and to them the richness of all our soils is owing. Every other soil being good in proportion to the quantity of clay that it contains. I have observed already, that they require laborious tillage, I shall add here, that they deserve it; and when brought into a thorough tilth, afford the richest crops. But at the same time it must be own'd that genuine, stiff, and unmix'd clays are seldom perfectly subdued without the assistance of manures. Sand, gravel, or other mixtures will facilitate their culture, and lessen the strong cohesion of their parts, which is otherwise too stubborn for the patience of any, but a Zeal-land farmer.

'Tis therefore an advantage that none of our clays are intirely free from sand, but incline all of them to loams. These abound in several parts of the kingdom, especially Leinster, Munster, and Connaught, where many of our pastures consist of a deep rich black mold, made up of a great proportion of clay, broken and divided by a mixture of some sand. Of this sort are also the Corcus and marsh lands in the counties of Limerick, Clare, Kerry, and Tipperary, which seem to be new soils made

' by the rivers and rains washing down and
 ' lodging the fine particles of clay, sand, and
 ' shells upon those bottoms. 'Tis the skilful
 ' husbandman's endeavour to make artificial
 ' loams, by mixing clays with sands, or sands
 ' with clays, and to do this effectually, requires a
 ' vast expence: but here nature has done the
 ' work to our hands, there is no need of gather-
 ' ing manures, or making composts for these na-
 ' tural loams; nothing more is wanted than to
 ' give them proper tillage, without this indeed
 ' the best of them will not answer, and the rich-
 ' est soils less than any other. Several have plow-
 ' ed up these loams and were greatly disappoint-
 ' ed in the produce: they trusted wholly to the
 ' richness of the soil, and that very richness was
 ' the cause of their disappointment: they ne-
 ' glected to give it proper tillage, and when they
 ' expected a crop of corn or flax, had little else
 ' but grass. Natural grass thrives so well in these
 ' rich soils, that except the roots of it are care-
 ' fully destroy'd, it springs up immediately,
 ' grows to a great height, and gets the better of
 ' every thing that's sown.

' I mention this as an additional argument
 ' for good tillage, which can never be too much
 ' recommended to the farmer, and I dare assure
 ' them from repeated trials, that nothing else
 ' but frequent ploughings, and a summer fallow-
 ' ing, will remedy this evil.

WEEKLY OBSERVATIONS. 89

‘ Upon the whole, it appears by this short survey of the soils of Ireland, that except our gravelly light grounds, they are all adapted by nature to the successful culture of flax and flaxseed. The countries which at present supply us with the latter, are confin’d to the two extremes of sandy loams and deep stiff clays; we have, besides, all the loams of different consistencies which lie between them; and consequently the advantage of some of them by the richness of our grounds, and of others by a less laborious tillage. If therefore we do not succeed, the fault is wholly in ourselves; we have land at will, variety of soils and situations, low, deep, moist grounds, which will answer in the hottest summers, and in cold wet seasons, uplands and drier loams.

‘ I shall conclude by observing, that nothing I have said, can, without wresting my design and expressions, be understood as a discouragement to the use of clays; I have declared my approbation of them under proper management: what set me on writing this, was only an apprehension, that our farmers might adhere too closely to the letter, confine themselves to clays, and neglect rich strong loams.’

I am, &c.

P.

N^o XVI. *Tuesday, April the 19th, 1737.*

THERE are many large tracts of ground in this kingdom, bordering on the sea, or on large rivers, which at high tides, or in great floods, are constantly overflown, and at other times so frequently covered and so much injur'd by water, as to be of little use to the owners, and often destructive to their cattle. These lands from the slime and mud, deposited there by the waters, become in time extremely rich, and wou'd prove in meadow, pasture or tillage, more fruitful and profitable than any other soils, if they could be secured from inundations. Of this kind, there are many thousand acres in this country, which would afford great profit to the owners, if reclaim'd, that are now of no kind of use, and by the damp and smells rising from them, injurious to the health of the inhabitants. Great numbers in other countries, and some few among our selves have attempted the recovery of such lands with great success; but the generality of our people, have neglected this kind of improvement, either from the want of skill and experience in the management, or from the apprehension that the expence would be too great. It will therefore be of considerable service to shew, as we propose to do, from the practice and experience of others, that by

WEEKLY OBSERVATIONS. 91

the means of sloping banks, which are made broad at bottom, and narrow at top, all such lands may be recovered, and effectually secured from the damage they receiv'd by water, and this at an expence very inconsiderable, when compar'd with the ensuing profit. To do this more exactly, and because a different management and expence is required in making the banks designed against the sea, and those against the floods of rivers, we shall at this time confine ourselves to those directions which are necessary to prevent the overflowing of tides, and postpone the consideration of the other part to another opportunity.

If you have marsh land that is subject to be flooded by high tides, and are willing to make a sloping bank, that shall effectually exclude the sea, and prevent any future damage; such bank may be made in the following manner. In that part of the marsh, or strand next the sea, where you would raise a sloping bank, dig a broad trench of 10 or 12 feet wide, and 2 or 3 feet deep, or more, according to the height and breadth of the bank required; if the ground is covered with grass, reserve the sods that you cut off, for future use, and with the soil that you throw up out of the trench, make the bank in the following form.

Lay all the soil that you take out of the

trench, on that side of it that lies towards the sea, and leave a space of two or three feet between the trench, and the foot of the bank. The height of the bank must be regulated by the height of the greatest tides, which seldom exceed three or four feet from the surface of the marsh they overflow; but should they in any place rise more, the bank must be raised accordingly, and great care taken that the bank be one foot higher at the least than the very highest tide. When you have raised the bank to the proper height, make it at top about two feet wide, and flat to walk upon, with an easy descent or slope towards the sea, of fifteen or eighteen feet in length, allowing the slope two and a half, or three feet fall to one in height, but the inside slope need not be more than eight or nine feet, which is a foot and a half slope to one foot perpendicular; by this means you will have a bank five or six feet high, and two feet broad at top, with an easy slope towards the sea, and a steep slope towards the land: the sods reserv'd at the first opening of your trench, may be employed in making the breast of the bank on the inside, and in covering the bottom of the slope towards the sea, to break the force of the waves in ordinary tides, and to prevent the wearing or washing away of the soil at the first making.

When you have raised the soil out of the

trench, and formed the bank in the manner above-mentioned, the next business is to give it a covering of grass; raising thin sods or scraws from other ground, and then carrying and laying them on the slopes, is attended with great expence, and is often of no use; for upon dry weather, the sods are apt to shrink, open, and part from one another, and are then liable to be all carry'd away by the next tides; the most effectual, and by much the cheapest way, is to make the slopes even and smooth, rake them fine, and then sow them very thick with hay-seed: This in a month or two's time, will grow to such a height as to be fit for mowing, and will afterwards prove the best defence against the force of the waves, which by the easy slope, and the close covering of grass, will be hindered from breaking the bank, or washing away the surface of it.

You may bring any tolerable soil to an immediate coat of grass, if you break and rake it fine, and sow it thick with hay-seeds, for in a week or ten days in the spring, or summer, they will be up, and grow to such a height in a month or six weeks, as to be fit for mowing.

Some have made walls of stone and lime, to keep out the sea, and others have raised perpendicular banks of sods, to prevent the overflowing of rivers; but after they had been at

an excessive expence in this management, they soon found all their works destroyed; the waters bearing with great force on such upright walls and banks, carry'd all before them; but when they flow on an easy and gradual ascent, and meet with no resistance, they can do no harm.

The making broad trenches near the banks, according to these directions serves two purposes. 1st, It affords materials for making the banks and slopes, and 2dly, serves for a drain to the inland ground, by receiving all the rain water which may fall thereon: These trenches should be carried as far as the banks, all along the sea, and in the lowest part of them a sluice with a valve, flap-door, or flood-gate should be placed, which will both discharge the inland water, when the tide is out, and prevent its coming in.

It is advisable in making such banks, to be as expeditious as possible, and to employ all the hands you can; the longer you are at work, the more you will be subject to be disturb'd by the tides: whereas, if you begin this work in a dry summer, and finish it in a month or two, you will run little risque of being interrupted, either by them or by violent storms, which might do more harm in a day than you can retrieve in a fortnight.

Lord Limerick has recovered between four and five hundred acres of very rich salt marsh, at Dundalk, and effectually secured them from the sea, by such banks as are here described; and by the same method many hundred thousand acres have been recovered from the sea in Cambridgeshire, Lincolnshire, and other parts of England, not to mention the low-lands of Holland, which indeed are all secured against the violence of the sea by no other means.

If you are under a necessity of making banks on a strand, where you can meet with nothing but sand, let your banks be large, and the slope very broad and extended; and if hay-seed will not grow on them, plant sea weeds, which with sticking furs, straw, or loppings of trees in such banks, to bind and keep the lands the better together, has been found of use, and may be done where the case requires it.

It sometimes happens, that the sea flows in through a narrow gut or passage, by which the inland waters are discharged, and then extends itself and covers a great deal of ground. When this happens, if the inland waters cannot be diverted into another course, since a passage must be left for their discharge, fix a strong sluice in the lowest part of the channel, with large piers of stone running out for its support, and a strong foundation of wood or broad stones,

for the water to run over: When this is done, then, in the manner before-mentioned, make your banks of sand, or any other soil near at hand, on each side of your sluice.

The reason why it is advised, in places where a sluice is to be made, to begin your work by that rather than by the banks, is, that while the sea has liberty to flow in and out at a great breadth, you may make your sluice in any part of the channel without being much incommoded by the tide; whereas if you defer it till the banks on each side are made, the force of the tide, when confined to a narrow passage, will tear up all before it, and make the building of the sluice impracticable; and upon the same account the banks should be begun at the lowest part of the channel, and from thence carried on to the upper grounds.

We shall conclude these directions by observing, that if by any accident the waters should swell so high as to overflow and tear the banks, you may prevent farther mischief, by fixing with all expedition a sail cloth, or sheet of linen at the bottom of the bank, where the flood breaks in; for if this be done in time, the water will flow over the linen without washing away the bank. P.

N^o XVII. *Tuesday, April the 26th, 1737.*

HAVING shewn in our former paper the method of securing marsh-grounds bordering on the sea, from being overflowed by high tides, we shall now proceed to give directions for banking out the floods of rivers from the low flat lands which lye contiguous to them.

This is particularly requisite in Ireland, because there is no country in Europe where rains, and consequently floods, are more frequent; and at the same time practicable here at less trouble and expence, because our rains and floods, though more frequent, are not so violent as in other countries. We are exposed to the Western Ocean, from whence are raised those vapours which supply this part of the world with rain; and 'tis foremost in the course of the Westerly winds which convey them. Hence those vapours begin to precipitate with us, and descend in easy showers; but in their progress Eastward, meeting with higher mountains and cooler air, which obstruct their passage and condense them, they come down in large quantities together and fall in heavy rains.

This situation, if prudently husbanded, might

be turned to an advantage: The many rivers form'd by these constant falls of water would afford us, at a small expence, a commodious and expeditious intercourse between the most distant parts of this island; but we suffer this benefit to turn to our prejudice. By neglecting to remove obstructions and stoppages in rivers, and to widen their channels, we not only lose the conveniencies they offer us, but besides, the use of the low and level grounds along the sides of them, which are generally our richest soils. These being covered all the winter long with water, and in summer by every flood, become in a great measure useless, and produce at best but a sour, coarse grass. The most valuable even of our meadows, which lye along the sides of rivers, are in summer-floods considerably injured: If they are flooded before mowing, the grass is sanded, and not fit for cattle; or if they should be mowed when the flood comes down upon them, the grass is spoiled in a great measure, or perhaps carried off the land, and the produce of the ground and the farmer's labour and expence all lost together.

In England, the legislature has provided, that upon complaint made, that rivers and water-courses are choaked up and obstructed, there should issue out of Chancery a commission of sewers, to oblige the proprietors of the lands

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WEEKLY OBSERVATIONS. 99

adjoining to clear and scour the channels, by contributing their respective quotas. Had the same provision been made in Ireland, it would not be in the power of one man, by his neglect or obstinacy, to defeat the industry of all others concern'd, and obstruct the public good. Whereas at present we see few attempts to clear and widen rivers, and none made at the common charge of the parties interested: The inability of some, the perverseness of others, and the difference of their tenures prevent the common good; every one shifts for himself, and all suffer.

If a survey were taken of the lands in this kingdom, which are yearly overflow'd, they would amount to several hundred thousand acres. Large rivers spread far and near over immense tracts of land, and even the smallest, in low and level grounds, do considerable mischief; to enhance the evil, 'tis our richest and fattest soils which are the most exposed in this case, and consequently most injur'd.

'Tis to be hoped that the legislature of this kingdom may, at some proper time, take this subject into consideration: In the mean while, we shall instruct our reader how he may secure himself, independently of the concurrence of his neighbours, and prevent the many mischiefs which attend these inundations.

The remedy is here the same, with the one prescribed already, against the encroachments of the sea; sloping banks are the best security against inundations of all kinds; and allowing something for the different weight of water, violence of waves, the same method is required to confine a river and to exclude the sea. However, as it is not every one who has sufficient skill to make such allowances exactly, we shall chuse rather to repeat some things in our former paper, than to leave the reader at a loss, and expose him to the danger of making his banks either weak and insufficient, or too large and too expensive.

To avoid both extremes, make your trench six feet over and five feet deep; your bank at the distance of one foot and a half from the trench, four feet high. Its longest slope towards the river of ten feet, and that towards the trench of six; and let the top of the bank be a foot and half wide. A bank of this form and these dimensions will bear up against most floods, few rivers rising higher than two or three feet above their level; but should any swell beyond it, make your bank in the same form, but proportionably higher, always one foot above the greatest flood. These banks as well as those against the sea should be sown with grass-seeds, which is much preferable to

WEEKLY OBSERVATIONS. FOR

fodding, and what fods you raise in breaking up the ground for the trench, may be usefully disposed of in making the inside breast of this bank.

The material point in erecting banks against a river, is to make them at a proper distance from the channel. When a river is too much confined it swells considerably upon a flood, requires banks of more height and strength, and often carries all before it; whereas if you leave a space between the banks and river, the waters spread, and seldom rise two or three feet above their level. Fifty, eighty or an hundred feet, and in some cases so many yards, according to the largeness of the river, must be left open for that purpose. By these means great floods will have full liberty to pass, without bearing hard upon the banks; whereas if they are pent up within a narrow compass, they must swell to a great height, and endanger the tearing and breaking down the banks.

This is the practice in the isle of Ely, where it is common to see great banks distant one or two hundred yards on each side from the channel of the river, and when they are so made they are always safe; but where the distance between the banks is narrow, there, and there only, the banks are in danger of being broke down, and the country overflowed.

The space of ground that is left between the banks and the river, will be far from being lost; in the dry seasons of the year it will afford good grasing, and in the part of it near the banks you may plant sallies, oziers, or other aquatics, which, besides the profit arising from them, will be of use to shelter the banks from storms and floods; but beware of planting them upon the banks, lest the winds spoil and tear them, by shaking the trees and loosening their roots.

In every improvement the expence should be particularly considered; we shall therefore observe, that the charge of making banks in this method is very small. In low grounds the soil is soft and dug with ease; the work may be all done with the spade and shovel, without pick-axes, which must be used in upland ground; and the materials are on the spot, and at your hand. So that it is reasonable to believe, that in a country where labour is so cheap, it will not cost above eighteen pence, or at most two shillings a perch to make these banks, and in some places perhaps much less: If this estimation holds good, a bank of a quarter of a mile long, which is eighty perches in length, will cost but six or eight pounds; and as the ground inclosed by such a bank must contain a good many acres, by laying out so small a sum, you may gain the very first year double the value in the

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improvement of your grass and safety of your meadows; and in succeeding years much more, and be out of all danger for the future of having your lands overflowed and spoiled. Farmers have frequently sustained more damage from the hay destroyed in one season by floods, than it would have cost them to enclose and bank their meadows, and free them from all hazards. P.

N^o XVIII. *Tuesday, May the 3d, 1737.*

THIS paper is designed as a supplement to those already publish'd on the manner of banking in low grounds, and contains more particular instructions on some points, not sufficiently explained before, and additional directions on other points of less importance, which have not yet been mentioned. By these means a good many things, useful to be known, which could not find room in the former essays without breaking the connexion, will be collected into this; and we hope the reader will, upon that account, excuse the want of order, which naturally attends a collection of this kind.

We think it necessary to begin by observing, that the dimensions of banks in general, cannot be ascertain'd; those we have assign'd are sufficient in common cases, and, for that reason on-

ly, have been made use of in our directions. Both tides and floods rise to different heights above the level in different places, and in different circumstances; and therefore 'tis from observations only, and those made upon the spot, that the true dimensions of particular banks can be determined; we can only remind the reader, that in this case above all others, 'tis better erring on the safest side, and incurring a little needless expence, than run the hazard of the whole improvement.

We have directed him to raise his banks a foot above the highest tide, or flood; and to dig his trenches so large, as to supply soil enough for the banks: we shall add here, that in estimating these, he must take into his account the extraordinary effects of storms, and other accidents, since it is certainly more prudent to guard, even at some cost, against an evil, that may never happen, than to neglect any one that may.

The improver in this way is advised, in our former paper, to leave a space of a foot and half, or two feet, between the bank and the trench or ditch; the reason is, that when the banks are made close upon the edge of the trench, the sides of it are apt to crumble and fall down, from the weight of the bank resting upon them; and when they do, the bank itself comes down along with them, and is not without much dif-

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ficulty and expence repaired: whereas by placing the foot of the bank at about two feet distance from the edge of the trench, you avoid these inconveniencies; should the sides of the trench fall in by any accident, the bank is however out of danger, or should a part of the bank be injured any way, the soil brought down on this vacant space is readily thrown on again.

The proper time for making banks is the spring, or very beginning of summer: you have little disturbance to fear from floods at that season of the year, and the grass-seeds sown upon the banks will then thrive best and soonest. We have directed the reader how to prepare his banks for hay or grass-seeds; we shall now add, that he ought to do this as he goes on, and dress and sow his slopes by degrees, and as soon as he finishes them.

Besides the inundations from the sea, and from rivers, low lands are often injured, and covered with waters, which fall upon them from upper grounds; to get clear of them, take the following method. Draw drains along the edges of the upper ground, from end to end, to intercept the upland waters, which may be afterwards discharg'd by other drains, carried on to the next river. The earth thrown up out of these drains, will make a bank towards the flat low grounds, which must be high enough to

confine the water in the drain, and prevent its overflowing.

By the help of these directions, in every situation, you may keep your low flat ground free from all foreign water, and leave none to lye upon it, but what falls directly from the heavens. 'Tis seldom found that any land is prejudiced barely by the rain that falls upon it; all damage from water arises from that which flows from other ground; however, when these low lands are secured from floods and upland waters, if at any time great rains should fall upon them, the trenches made within side the banks, according to our directions, and those which are always made to divide them into parks, will drain off most of the superfluous water; or should too much remain, after all this, it may be discharged by a small sluice a foot wide, placed in the lowest part of the ground near the river.

Notwithstanding the instructions given in this and former papers, to preserve land from inundations, we are fully satisfied that all inundations are not hurtful. It is certain that floods enrich all lands by the sediment they leave behind them, and 'tis only when they lye too long and chill the ground that they become injurious; 'tis therefore as necessary sometimes to admit them, as at other times to exclude them, and

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to put it in the farmer's power to do either, is the chief aim of these directions: for this purpose 'tis first necessary to shut them out, and when that is done, you may let them in and out at pleasure for the future. To that end, fix one sluice in that part of the bank where the river first comes on your land, and another in that part where the river leaves it. The first to let in, and the other to discharge the water.

When the farmer can thus command the flood, and make it subservient to his profit, he has a constant manure at hand, which will soon reward his labour and expence. However, he must manage it with caution. The winter is the only season for flooding low lands; and the beginning of a flood the best time. 'Tis then foul and muddy, and as it fines deposits a rich slime, which improves the ground beyond any manure whatever; when that is done, the water will soon clear, and then is the time to discharge it; if a flood lies long upon ground, it will chill and spoil the grass; but if it lies two or three days only, it will enrich the soil without doing any damage.

Before we conclude this subject, we shall take notice of a particular case which often happens, and therefore deserves to have a few words bestowed upon it. 'Tis frequent, that a mill-race runs through low grounds, and by lying higher

than the land on either side, and flowing a-cross the fall of it, obstructs the inland waters which fall on the upper side of the land, and prevents their passage to the lower, where they might be discharged: in this case you may easily get rid of the water so kept in, if you make a cut a-cross the mill-race, and fix a trunk of wood a foot square, well pitch'd, in the bottom of the channel, from side to side; the inland water will enter the mouth of the trunk on one side, pass through it under the mill-race, and be discharged on the other side of it, where the land is supposed to lye lower; and by the same method of conveying water through a wooden pipe, under the channel of a river lying in its way, many parcels of ground, otherwise irreclaimable, may be drained with ease.

Having now finish'd our directions for securing all low grounds from water, and keeping them dry, in a manner the most effectual and least expensive, and liable to little or no damage or repairs; we shall, before we dismiss this subject, take the liberty of recommending this improvement in the strongest terms to our countrymen. There are many thousand acres in this kingdom, which on every flood are covered with water, and so injured as to be of little use to the owners, all which by the method before-mentioned, may with ease be converted

WEEKLY OBSERVATIONS. 109

into the richest meadows and pastures: this is more wanted, and more necessary to be done in Ireland than in other countries; for though our lands throw up much grass, and we have great plenty of it in summer; yet so it is, that for want of fodder, the cattle of the poor perish miserably in the winter and spring; they trust to, and depend on the mildness of the seasons; but whenever snows continue any time upon the ground, or when the winter proves cold and wet, or the spring cold and dry, all their cattle starve, and a great many are lost, to the utter ruin of the poor people; as they have no fodder of their own, no money to purchase it, if it could be had, and in many places none to buy, if they had money, 'tis no wonder to see our poor cottagers reduced to beggary, by the loss of their cows (the chief and almost only support of their families) who die for want of a little fodder. This alone is an evil which common humanity should engage us, if possible, to remedy: but it extends much farther, and affects every branch of our husbandry; the horses that labour our ground, are in the spring so weak and emaciated, for want of proper food, that they either are not able to work at all, whereby the tillage must be wholly neglected, or if they do, it is with so little strength, that their work is very meanly and slightly performed; besides, most

of them die in that poor service: add to this, that great numbers of black cattle and horses are lost in sloughs, bogs and other dangerous bottoms, by attempting in the spring to get a little grass.

This is the present miserable condition of most of our country people, and must be so till we lay hold of the easy remedy prescribed in these papers. If the low lands, which are dispersed throughout all parts of the kingdom, and amount at least to an hundred thousand acres, were banked in and secured from water, in the manner before-mentioned, they would, in a short time, all become rich meadows, and not only supply sufficient fodder for all our cows and horses the year round, and keep them in good plight for labour and all other uses, but besides stall-feed dry cattle for winter, with which we are so ill provided at present.

The people of England have of late years much increased their upland meadows, by sowing their lands with foreign grass-seeds; but this is attended with a considerable expence at first, and a constant charge afterwards; we have it in our power, at a trifling charge, to make a vast addition to our low meadows, and keep them in good order without any farther trouble.

We flatter ourselves with the hopes of seeing, within the space of eight or ten years, all

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WEEKLY OBSERVATIONS. 111

our low grounds reclaimed, and brought into the form of fine meadows, and planted round with trees proper for the soil, which would be an ornament to the country, and at the same time a great benefit to the owners; and we have the greater reason to expect this improvement, since it is in the power of every one who has such low ground in his possession, to inclose and secure his own land, tho' his neighbours should neglect theirs; and this at an inconsiderable expence, perhaps not more than that of making common ditches of six feet wide and five feet deep in upland ground: and whoever shall first begin to put this method in practice, will not only receive an immediate benefit by his improvement, but will have an advanced price for his meadows, which are always of greater value in proportion, as they are scarce, and in small quantity. P.

N^o XIX. *Tuesday, May the 10th, 1737.*

MANY of our readers will undoubtedly be surpriz'd, upon perusal of this letter. 'Tis an extraordinary attempt to raise good hops in bogs; and especially in that kind which our ingenious correspondent mentions; but as there was a time in which the most common things were new, it can be no objection to this

method of improvement, that it is a novelty: On the contrary, since it has succeeded with the author of this letter, and the usefulness of it is thereby out of question, we have reason to hope it will be doubly welcome to the curious, as a valuable and a new discovery.

GENTLEMEN,

‘ **A**S I believe your invitations to a general
‘ correspondence were more than mere
‘ formality; I have reason to hope for your
‘ favourable acceptance of the following hints.
‘ They relate to a subject of great importance
‘ in this kingdom, and are grounded not upon
‘ conjectures, or the information of others, but
‘ on my own experience.

‘ It must be matter of concern to all, to see
‘ great tracts of land lye entirely uselefs in a
‘ country, which has the utmost reason to hus-
‘ band all advantages with care; such are the
‘ many and extensive bogs to be met with e-
‘ very where; which, except a poor coarse pas-
‘ ture on the better kinds, afford no other pro-
‘ fit to the owner, than what can be made by
‘ burning the soil of them in turf. I hope there-
‘ fore it will be an attempt agreeable to gentle-
‘ men of your public spirit, to introduce a cul-
‘ ture of them, which, at a small expence, will
‘ turn to great account, and to make those un-

WEEKLY OBSERVATIONS. 113

‘ profitable lands, without much labour in re-
 ‘ claiming them, bear a good and valuable crop.
 ‘ The crop I mean is hops; and the bogs in
 ‘ which I have reared them with most success,
 ‘ the worst and most useless of all others—the
 ‘ red bogs. The profit has for many years fully
 ‘ answered my expence, and what has turned
 ‘ to my advantage, will do so with every body
 ‘ else in the same method of improvement.

‘ Few are so far strangers in this matter as
 ‘ not to know, that among the several kinds of
 ‘ bogs, the red are deservedly esteemed the
 ‘ worst. Black bogs yield some kind of pasture,
 ‘ of a finer or a coarser grass, according to the
 ‘ nature of the bog: They are besides more ea-
 ‘ sily reclaimable, and if the upper surface be
 ‘ skimmed off and the sods burnt, they afford
 ‘ their own manure a large quantity of red
 ‘ heavy ashes, strongly impregnated with salts;
 ‘ whereas the red bog has none of these good
 ‘ qualities; it has a spongy, light, fungous, va-
 ‘ riegated surface, bears no grass, and when you
 ‘ come to burn it, yields but very little ashes,
 ‘ and even those white, sleeky, light and insipid.
 ‘ This is so well known, that these bogs are ne-
 ‘ ver charged with rent, but thrown into the
 ‘ survey of farms as unprofitable lands. I have
 ‘ indeed reclaimed some of this kind of bog, in a
 ‘ different manner, and for other purposes than

114 THE DUBLIN SOCIETY'S

‘ for hops, and therefore cannot join in calling
 ‘ them unprofitable; but since they are gene-
 ‘ rally so esteemed, and accordingly neglected,
 ‘ it will be of equal service to my country, to
 ‘ promote the culture of them under hops, as
 ‘ if they were really so.

‘ As one letter cannot contain all I have to
 ‘ say upon this subject, you’ll give me leave,
 ‘ gentlemen, to confine myself in this to the
 ‘ manner of laying out the ground, and to re-
 ‘ serve the planting of the hops for the subject
 ‘ of a second: Should I crowd the whole into
 ‘ the compass of one paper, my directions could
 ‘ not be particular, as they must be in essays of
 ‘ this kind, to be useful to the farmer. There
 ‘ are in the execution of any new improvement
 ‘ many little circumstances, which alleviate the
 ‘ labour and lessen the expence; and tho’ they
 ‘ may appear trifling upon paper, they are how-
 ‘ ever of considerable importance in practice:
 ‘ these I shall take leave to observe as I go on,
 ‘ being less concerned for elegance and neatness
 ‘ in a performance of this kind, than for the ease
 ‘ and advantage of the husbandman.

‘ Round the spot intended for your hop-
 ‘ yard, dig a trench seven or eight feet wide to
 ‘ drain off the water, give it all the depth the
 ‘ fall of your bog will bear, and if you cut it
 ‘ into the gravel ’tis the better; make your

WEEKLY OBSERVATIONS. 115

‘ trenches strait, and every where of an equal
‘ breadth: to that end lay them out and mark
‘ them by the line. The score or mark is made
‘ in uplands with the spade, but in bogs a hay-
‘ knife is much better. — One man will cut fas-
‘ ter with this instrument, than five men in the
‘ common way.

‘ When that is done, take off the first or up-
‘ per sods of your intended trench with the
‘ spade, but beware of cutting your sods too
‘ large; they are then inconvenient for car-
‘ riage, and increase the labour of removing
‘ them. Make them of that size that they may
‘ be easily turned up, and thrown with pitch-
‘ forks on a wheel-barrow; you may then,
‘ at a small expence, convey them where they
‘ may be useful. The proper use of them is to
‘ fill the adjacent bog-holes, and level the un-
‘ even places of your bog. However, it will be
‘ necessary to reserve a few of them for facing
‘ your ditch, in the same way as you do upland
‘ ditches.

‘ When the first sod is pared off, proceed to
‘ dig your trench with flanes: the soil thrown
‘ up will be as good turf as any other, and de-
‘ fray the expence of trenching; and this I de-
‘ sire may be understood as a general direction,
‘ and applied wherever a trench or hole of any
‘ size is to be cut out in a bog. By this means,

' the charge of digging is made up to the farmer in good turf, and the labour pays itself.

' In cutting your trench, be careful to leave a gun on each side of your plot: this is a piece of bog uncut, designed as a passage in and out, with a channel for the water bored in it; it must be nine or ten feet wide, and the arched channel under it of sufficient height and breadth to let the water through. In short, a gun is a natural bridge, and must have the same qualities, strength in the arch to afford a safe passage over, and wideness equal to the discharge of water. Two men with spades or shovels, thrusting from each side, till their tools meet, will make one in a little time.

' There is another circumstance to be observed in the making of your trench; at the lowest part of it, where the water is discharged, leave a bank of two feet high uncut, to keep it to that height in the whole surrounding drain. By this means you have a reservoir at hand for the use of your hop-yard; which, whenever a dry summer happens, will require to be well watered; and besides a ready and cheap manure from the sludge or mud, which will lodge at the bottom of your trench, when the current is checked by this little bank. Some indeed may fear that the inclosed ground may suffer by this method, and be kept too moist

by the water about it; but this I am by long experience satisfied, is a groundless apprehension. The flowing waters with a fair vent before it, has little lateral pressure, but directs its way where it has the freest passage. I have made large drains in a bog and kept them full of water within a foot of the brim, and found no inconveniencies attending it.

When your surrounding trench is finished, at four feet distance from the inner edge of it, and exactly parallel, draw another inside trench of two feet wide and two feet deep; let it be drawn like the former round the ground, and by the line; then fill it up with proper soil, and plant sallies in it, or any other aquatics fit for poles. They will thrive here exceedingly, and with proper care, in six years time be ready for the use of the hop-yard. The earth about them is kept moist by the bog about it, and their roots preserv'd from frosts and winds by the distance of their stand from the edge of the main drain; and therefore nothing can prevent their growth: To forward it as much as possible, two cautions should be used. The first to strip off the side shoots when tender, to prevent their running out into strong branches, which impair the body of the tree; the second to throw up the mud out of your trench upon their roots, and that way to supply them

118 THE DUBLIN SOCIETY'S

‘ with fresh nourishment. This should be done
 ‘ when your fallies are two years old ; at that
 ‘ time and in the heat of summer, cut the little
 ‘ bank which keeps up the water in your trench,
 ‘ and leave the drain entirely dry ; the mud at
 ‘ bottom will grow stiff and be easily thrown up,
 ‘ and your trees manur’d at very little charge.’

I am, &c.

A.



N^o. 118. Tuesday, May the 17th, 1737.

THIS letter contains the remainder of our ingenious correspondent's directions for raising hops in red bogs, and will, we doubt not, be acceptable to the reader.

GENTLEMEN,

‘ **Y**OU'LL give me leave to proceed in my
 ‘ instructions on bog-hops without intro-
 ‘ duction or apology, and to address myself di-
 ‘ rectly to the farmer.

‘ When you have prepar'd and inclos'd your
 ‘ bog in the manner describ'd in my former let-
 ‘ ter, at fifteen or twenty feet distance from the
 ‘ sally trench, stretch a line parallel to any
 ‘ one side of your inclosure. To this line tye
 ‘ rags or feathers nine feet asunder from each

WEEKLY OBSERVATIONS. 119

' other; and when your line is stretch'd upon
 ' the ground, at every mark or feather drive a
 ' sharp stick into the bog to determine the cen-
 ' ter of your hop-hills. Having finished your
 ' first row, remove your line to nine feet dis-
 ' tance and mark out a second; from that pro-
 ' ceed to a third row, and so on until you have
 ' finished the whole plot. The ground being
 ' thus set out and the centers of your hop-hills
 ' regularly dispos'd at nine feet distance from
 ' each other; your first work will be to dig a
 ' hole at every center, three feet wide and three
 ' feet deep: to lay the upper sods of it in the
 ' hollows of your bog and to make turf of the
 ' remaining soil. If you proceed in your work
 ' that summer, your turf must be wheel'd off
 ' immediately, spread and made upon other
 ' ground, otherwise it would prevent the passage
 ' of the tumbrils, which you have occasion for
 ' in your next business. This is to fill your
 ' holes with proper earths or composts in order
 ' to receive the hop sets, which are to be planted
 ' here and afterwards manag'd in the same me-
 ' thod as in other places. To do this, it is obvi-
 ' ous that much earth will be wanted in a planta-
 ' tion of any considerable size; and how to pro-
 ' vide himself with a sufficient quantity at a
 ' cheap rate, is of great importance to the far-
 ' mer. My method is as follows. In the upland

'nearest to the bog, I take off the fwerd of a
 'small plot with the hoe or winged plow: I
 'burn it, and by thorough plowing mix the
 'ashes with the mould. To these I add a little
 'lime, rotten dung or rich garden mould, and
 'throw the whole together into heaps where it
 'heats and rots, and in a little time affords the
 'richest compost, and the best soil for hops. I
 'have made artificial earths in this manner not
 'only for the present purpose, but in other im-
 'provements also, and found it, upon trial, a
 'great deal less expensive, than it appears at the
 'first view. The carriage of them to the bog is
 'the heaviest article in the expence, and this also
 'is much alleviated by the breadth of the allies,
 'and the method of planting the hops in holes.
 'As the tough surface of your bog is no where
 'broken, but in the very spots where the hops
 'are planted; it affords a safe passage for your
 'cattle: and as your walks are six feet wide,
 'the hills being but three feet over, and the cen-
 'ters nine feet distant, you may make use of
 'cars and tumbrils, a cheap and commodious
 'carriage.

'I own, that notwithstanding these precauti-
 'ons, this improvement is expensive; but rai-
 'sing hops in any ground is so, and, I am sure,
 'greater in the most favourable upland situati-
 'on, than in bog. A very little arithmetic will

' shew, that ditching and inclosing, which in bog
 ' is no expence, the turf made at the same time
 ' being equal to the charge; that plowing, har-
 ' rowing, fallowing, and digging, which in my
 ' method are intirely sav'd, with the additional
 ' articles of dunging, hoeing, and paring the al-
 ' lies in uplands, are more than an equivalent
 ' for all the labour and expence attendant on
 ' bog-hops; and from fifteen years experience,
 ' I can venture to affirm, that the produce from
 ' the latter is as great in quantity, and, in qua-
 ' lity, as good. Many reasons might be given
 ' why it shou'd be so; some of them I beg leave
 ' to lay before your readers: they may be ne-
 ' cessary to remove the prejudices which gene-
 ' rally attend new projects, and to make this
 ' improvement as common in this kingdom as,
 ' I am sure, it will be beneficial whenever it be-
 ' comes so.

' Were it peculiar to my method I should
 ' reckon it the first advantage of it, that the hills
 ' stand at nine feet distance; but as this may be
 ' imitated in uplands I shall only say in gene-
 ' ral, that nothing is more prejudicial to hops
 ' than close planting.

' The care taken in uplands to hoe and pare
 ' the allies sufficiently shews that it is esteemed
 ' a disadvantage to have any quantity of grass
 ' growing among hops: red bogs are, by their

' nature free from this inconvenience, and, at
 ' least for many years, till the surface is intirely
 ' altered, throw up none, or very little; how
 ' far planters are right in their opinion, that a
 ' coat of grafs impairs the action of the sun up-
 ' on the fruit I shall not here examine, but while
 ' that opinion holds, it will ever be a reason in
 ' favour of *red-bogs*.

' Watering hop grounds in dry seasons, tho',
 ' from the great expence attending it, too fre-
 ' quently neglected, is certainly of great benefit
 ' to the crop. This may be done in bogs with
 ' great conveniency and little charge. The sur-
 ' rounding drain is a constant reservoir where
 ' the planter may be readily supplied; and who-
 ' ever understands the culture and the growth
 ' of hops, will reckon this no small encourage-
 ' ment.

' 'Tis agreed among hop-planters that low
 ' grounds have great advantages, they are little
 ' expos'd to droughts, and shelter'd by their si-
 ' tuation from destructive storms. Bogs enjoy
 ' those in common with the rest, besides, as long
 ' experience has inform'd me, some peculiar to
 ' themselves; they don't suffer so much as other
 ' flats by the rains of a wet season or the mil-
 ' dews of a dry one. Whether their spunginess
 ' affords a passage to the waters which lodge in
 ' other grounds, and their constant moisture

‘ prevents the bad effects of too much heat, I
 ‘ shall not now examine; but the fact itself is
 ‘ certain, they are free from the inconveniencies
 ‘ above-mentioned, and, what is more remark-
 ‘ able, from those swarms of insects which too
 ‘ often infest our upland hops.

‘ I must add that in this kind of planting the
 ‘ top roots have liberty to shoot as far as nature
 ‘ design’d they should: they have three feet of
 ‘ the richest soil to go thro’ before they run into
 ‘ the bog, and even there, when once it is well
 ‘ drain’d, they’ll meet with better juices, than
 ‘ in a cold stiff clay, or a sharp sour gravel, which
 ‘ are the common upland bottoms.

‘ I shall conclude by obviating a doubt which
 ‘ might perhaps occur to some of your readers;
 ‘ poles will stand in these bogs as firm as in up-
 ‘ land ground. The earth laid into the holes
 ‘ press’d together and confin’d by the tough
 ‘ stringy substance of the bog, will sufficiently
 ‘ support them, and they need be sunk no deeper
 ‘ than improvers direct in other hop-yards.

‘ You may observe, gentlemen, that I have
 ‘ engaged no farther in hop-husbandry than to
 ‘ explain what was peculiar to my method. The
 ‘ ingenious treatise publish’d on that subject, un-
 ‘ der your own inspection, will inform the rea-
 ‘ der in the general management of them; and
 ‘ to that I must refer him, till you are pleas’d

'to resume a subject which deserves your second thoughts as well as any other. When you do, I shall beg leave to throw in my mite, and send you some observations I have made upon the usual culture of them.'

I am, &c.

A.

We cannot dismiss the reader without observing to him, that it were to be wish'd many gentlemen would employ their leisure hours in the country, in the way of our ingenious correspondent in making experiments, and attempting new improvements. That, in which he has succeeded, was certainly as unpromising as any other, and affords encouragement to explore more of those untrodden paths which we find lead to private profit and to public wealth. Black-bogs promise better than the red, and since these turn to so good account, why should we not try the other? or if we are unwilling to run hazards, let us at least improve where we may do it with more safety. We do not want good land to employ our industry upon, and if so much can be made out of the worst, what may not be expected from the best?

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N^o XXI. *Tuesday, May the 24th, 1737.*

WE have thrown together in one view what is most material to be observed in making roads, in compliance with the request of several gentlemen who have applied to us for our directions on that subject, and we chuse to publish them at this time, because it is the proper season for carrying on works of that kind.

Gravels make the most commodious and easy roads for travellers and carriages, and are greatly preferable to causeways and pavements, which are at best very inconvenient, and when broken up, as they are apt to be, vexatious and dangerous to all who use them.

Our great roads, made in pursuance of the turnpike acts, are all gravelled, and, as every body knows, the finest roads in Europe. Those more distant from the metropolis, and the bye and cross roads, which now require our care and attention, should be made in the same manner; what that is, is at present pretty well understood in those parts where the turnpikes have taken place, and to make the same method universal is the design of this paper.

The most necessary directions are as follow.

The great art in this affair is, to make the roads close and firm, with an easy fall from the

center to the sides. Water, which is of great detriment to roads, cannot lodge upon them when they are thrown into that shape, much less soak in and enter them; and if the surface be close, and the foundation firm, carriages will not break them: gravel answers all those purposes: it binds into a strong close surface, by its grosser parts affords a good foundation, and may with ease be form'd into a proper shape. 'Tis therefore our own fault if we want good roads, since we find gravel in all parts of the kingdom at a convenient distance.

But to be more particular.

If you are to repair an old road, before you begin your work, examine well the natural bottom of it; if you find it hard and firm, you have nothing more to do than to take off all the loose mould and rubbish that lies on the surface, and throw it entirely off the road; and if there are any inequalities in the bottom, to take them away, and then lay your gravel to a sufficient depth and breadth; but if the bottom be soft, sloughy, or such as will easily break up, you must besides put a layer of stones in all such places, to make a good foundation, before you bring on your gravel; where stones are plenty they will do well every where under the gravel; but however scarce they may be, you must, at

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least, get as many of them as will cover all the soft hollow bottoms.

These soft yielding bottoms excepted, you may save yourself the expence of stones where your gravel is very good; but lay it thick enough: good gravel will always make good roads; without it, 'tis exceeding difficult; and unless you can procure a small quantity, at least, for the outward coat, perhaps impracticable; but when you have any, tho' but little, you may succeed tolerably thus: Make a layer of stones for your foundation, cover this with the indifferent gravel you have at hand, for gravel of some kind or other is always to be had in this country, and reserve your good gravel for the surface. Indifferent gravel is that which contains too great a mixture of clay, sand, or mould; and whenever you meet with such, you must procure a covering of better, tho' it were but an inch, at any labour or at any distance.

In laying gravel on the road, it is more advisable to lay it on at two several times, than all at once; if any hollows should appear after the first coat, they will be easily fill'd up by the second, and both will cement well together. The gravel should be spread immediately after it is laid down, and all large stones raked to the bottom; smaller stones or pebbles you must

rake from the edges towards the middle, where they will make that part of the road hard and firm which is most made use of; all of them, but especially the largest, should be buried in the gravel, and none left on or near the surface bigger than an egg. In forming the road, raise the gravel higher in the middle, and give a due fall or slope to each side; if the fall be too little, water will not readily fall off; and if it be too great, it will be uneasy and dangerous to the rider: An inch fall to a foot slope is generally sufficient; and by that rule, if the gravel spreads twelve feet wide, and consequently six feet on either side, the middle must be rais'd six inches higher than the edges: this has been thought too much by some, but there is in reality more reason to fear it is too little, considering that the middle of the road is most us'd, and is every day worn down and brought nearer to the level of the edges.

It has been hinted already, but very well worth insisting on, that when you repair old roads you should not by any means make use of the soft mouldring stuff you meet with on the surface of it, for as that is made up of the dung of cattle, leaves of trees, loose sand and clay, which are always fermenting, it will spew up the gravel, when mix'd with it, and spoil the road in wet weather.

Large turnpike roads require a considerable depth of gravel to answer the constant wear of them; but other roads, which are at present principally under our consideration, may be made good with gravel from eight to twelve inches deep in the middle, and from four to eight in the edges.

The breadth of roads cannot be otherwise determined than by the use made of them; if they are near the metropolis, or large towns, and are much us'd, they ought to be thirty or twenty four feet wide at least, and the wider they are the better, that the sun and air may have more liberty to keep them dry; for the same reason no road should be less than twenty feet wide between gripe and gripe; especially where there are trees or high hedges on the sides of the road, which spoil them with their leaves, and keep them always wet: We find that the gravel'd parts of most of our turnpike roads are from fourteen to twenty four feet wide, with a grass verge between the gravel and the ditches from four to six feet wide. But with respect to bye or cross roads, and those distant from the metropolis, we apprehend, that gravelling the middle from eight to twelve feet wide will generally be sufficient, leaving a grass verge of four to six feet wide on each side between the gravel and the ditch. The gravel and grass parts

together will make the whole road sufficiently wide, and the latter will serve best in summer to ride upon.

Finding that what we have to say on this subject will exceed the ordinary bounds of our paper, we shall postpone the remainder to the next opportunity. P.

N^o XXII. *Tuesday, May the 31st, 1737.*

IT is observed that it is easier and less expensive to make a new road through fresh ground, than to repair an old one; in the latter, you must remove a great deal of foul stuff that lies upon it, fill up hollows, lower what is too high, and in many places make a stone foundation before you lay on your gravel; but in making roads through new ground, you avoid most of this trouble. There are two several ways of making them; the first is this, make large ditches on each side of the road, and excepting the first spit of earth, which must be carefully kept off, lay the soil you take out of the ditches on the middle of the road as wide as you intend to lay your gravel, raising it higher in the middle than the edges; then rake it, and lay it even, and let it lye so for some months till it becomes hard, without letting any horses or carriages go on it; and when it

WEEKLY OBSERVATIONS. 131

is well settled and dry, lay your gravel on it; this method has been found to answer very well, without using any stones except in hollow bottoms. The second way, which succeeds very well, where the bottom is good and gravelly, is this: Dig the ground in the middle of the road five or six inches deep, and as wide as you intend to gravel it, throw away all the soil you dig up, and level it at the bottom, then fill this hollow space with good gravel, and raise it three or four inches in the middle, and one inch at the edges higher than the grass on each side; by this means the gravel will be kept in by the ground on both sides, and make a lasting road. The last method has been practised with success, and, where the bottom is firm and sound, is the readiest and cheapest method. Where the gravel is near at hand, and laid but eight feet wide, the charge cannot well exceed one or two shillings for each perch.

If hollows should appear in the road soon after making, 'tis obvious that it is better they should be fill'd with gravel the very first season; for a small hollow at first will, by the working and dashing of the water, become a great hole in a little time.

Tho' we have hitherto only mention'd gravels, because they are the best materials for making lasting roads, the coarser kinds especi-

ally, which abound in small stones or pebbles, we would not be understood as if we condemned the use of all other: Rotten quarry and slate stones will break with ease, crumble, and bind well, and make very serviceable roads.

'Tis of great consequence that the ditches on the sides of the road should be large enough to receive all the rain-water that falls upon it, and that there be proper passages cut, and often clear'd, to let it run off; as also, where little brooks or currents cross the road, or the fall of the ground requires it, that shoars or arches should be made to convey the water under ground.

Roads are best made as early in the summer as the weather will allow; they have then the heat of the whole season to dry and settle; however, from September to March they must not be meddled with, those that are so break with the first rains.

Pavements and causeways in old roads make good foundations for new ones, provided the stones be raised, to bind the gravel together, which is to be laid on them.

Where your roads are naturally good, and have gravelly binding bottoms, you may keep them so, and improve them at a trifling expence; 'tis only sloping and sinking them gradually towards the sides, deep enough to carry off all the rain-water.

These are the best directions we have been able to collect, and which we have thrown together merely to comply with the request of several gentlemen; the subject is something out of our way, and did not fall immediately within our observation, but we shall be pleased to have stepp'd aside a little, if any good shall arise from it. This country is naturally wet, and our roads consequently bad, and therefore some care should be taken to free us from that inconvenience; on the other hand, we have abundance of the best materials to mend our roads, and therefore less pains will do the business.

The Romans did not think it below the dignity of the commonwealth to attend to the conveniences arising from good roads. That great and wise people carried on, at an immense expence, roads, whose remains are to this day the admiration of the curious, from the center of the empire to many of the remoter provinces. The readier march of their armies was, perhaps, their first motive, but the easier intercourse of the several parts of that great empire was another, which they had too much prudence and too much humanity to overlook. 'Tis, in the eye of reason, the nobler and the better motive and sufficient without the other to work upon a generous people.

Of late years the wisdom of the nation has,

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in some degree, imitated the Romans in this particular, our great roads being provided for by parliament, and the considerable charge attending them prudently and equitably defray'd by an easy tax upon the traveller. But however a great deal is yet undone, and notwithstanding the provision made by law, our lesser roads are still in a bad state from the obstinacy and perverseness of some, the inability and unskilfulness of others, and the indolence of all which in different ways equally defeat the good intentions of the legislature.

In other countries there are public officers with great powers, appointed to inspect the roads, and force those who are refractory to assist in the repair of them; this is, perhaps, not perfectly consistent with the freedom of our constitution, and therefore some other method should be thought of attended with the same advantages, and not liable to the same exceptions. The attendance of gentlemen of fortune on the six day's labour is an expedient of this kind, which would certainly produce the desired effect, without the appearance of compulsion, and in a way least grievous to the people. To encourage gentlemen to take this trouble, the many advantages arising from good roads to the country in general, and their tenants in particular, are certainly sufficient motives; easy intercourse

and cheap carriage are considerable benefits which every generous mind would be pleas'd to bestow upon his neighbours. However it may not be improper to remind them of an advantage which they may think more immediately their own.

The pleasures of the country depend greatly upon agreeable outlets. Without them a gentleman is confin'd to his house as to a prison, or must wade to his next neighbour's thro' a sea of dirt and mire. Many sumptuous palaces, and fine gardens in this kingdom are like the enchanted castles in romances, out of which there is no issue, without a spirit of knight errantry to encounter perilous adventures. To speak seriously, 'tis a whimsical inconsistency to lay out considerable sums in beautiful improvements, and grudge an arrant trifle to make the approaches to them pleasant. Were there no such thing as public spirit, this single reason should engage gentlemen's attendance within a mile or two of their several seats; and would every one begin from his own as from a center, and improve the roads all round him to that distance: the whole kingdom would be parcell'd out among them, and in few years they would all meet.

Gentlemen have been so long us'd to pursue a pernicious way to interest and power, and the common people so accusom'd to be courted by

destructive compliances, that perhaps it may be of little weight to propose new methods of gaining an influence in the country. However we cannot help concluding on this subject by observing that, whenever it shall be tried, that interest will prove most lasting, and with a little constancy, most considerable also which is built upon better foundations. He who bestows his pains, and where need is, some portion of his fortune to procure the ease or advantage of his neighbours, will, in the end, meet with suitable returns, advance his power in proportion to his public spirit, and create dependencies as extensive as his usefulness.

P.

N^o XXIII. *Tuesday, June the 7th, 1737.*

MANY of our correspondents have applied for the SOCIETY'S directions in making cyder, which is become of late years a business of some importance, since the consumption of that agreeable liquor is considerably encreased already, and every day encreasing.

In compliance with their request, what we have been able to collect upon that subject from the experience of others carefully considered, or from the analogy of cyder with other vinous liquors, shall in this, and some following papers, be laid before the reader, to instruct the

WEEKLY OBSERVATIONS. 137

ignorant, and to invite the skilful to communicate their observations, if any thing of moment should occur to them which has escaped our notice.

This season of the year is not fit for planting orchards, and therefore directions on that head would be ill timed and out of place. 'Tis indeed a leading branch in the business before us, and an improvement very necessary in this kingdom, where notwithstanding many large plantations lately made, our consumption is still greatly superior to our stock, and cyder a considerable article in our importations: but it is at the same time a branch of business that may wait, and wherein our instructions would be useless to the reader for several months to come, we shall therefore in these papers address ourselves to such as have orchards ready planted, direct them how to chuse and mix their fruits, and draw from them the most valuable cyder.

'Tis a hard matter to prescribe to the palate, and set rules to taste; and therefore the endless variety of different flavours to be found in different kinds of cyder may be justly reckon'd an advantage; every apple has its peculiar relish, and affords a distinct juice, strictly and properly its own, tho' included in the common name of cyder; which therefore under one general appellation contains something for every palate,

and leaves room for the wantonness of taste and fancy. There is, however, in this, as in every other liquor, a leading taste; which prevails amongst those who are accounted judges, and thereby becomes the standard of its value; this in cyder is a strong, rough, vinous taste, which is now the reigning one, and will probably hold the preference; for, however arbitrary the decisions of the palate, there are other qualities of a more fixed and settled nature which always go together with this flavour, and give that kind of cyder a great advantage of all others; it keeps well, and improves by age; it is wholesome as well as pleasant, and has strength and spirits to supply the place of other vinous liquors. In its highest degree of perfection this cyder is not inferior to the juice of grapes, and seems to be bestowed by nature upon these northern countries as a full equivalent; and if we may believe the wonders that are told of the stire cyder, we have little reason to complain of our portion. 'Tis true the stire is confined to a narrow compass, and the apple it is made of loseth something of its relish in every soil, besides its native one. But, perhaps, upon repeated trials this antipathy to transmigration might be conquered, and a soil found out as kindly to it as its own; or if this should not succeed, 'tis however likely that this cyder is not single of

its kind, but that among the vast variety of apples, and the endless combinations of them in different mixtures, something may be found equal to it, and perhaps superior.

'Tis observed that the kernels of grafted apples produce new species, equally different from the graft and stock, though partaking something of them both; hence the gardiner may every year create new kinds, 'till by some lucky hit he lights on the flavour he would chuse; or should he fail in that way, the mixture of different juices, in different proportions, affords him another method of trial, which frequently and prudently repeated, can hardly fail of the desired success.

There are now, in the southern parts of Ireland, a sufficient number of large orchards planted with cyder fruit, to make experiments of this kind practicable; and the late improvement of our cyders in those parts affords great encouragement to hope that they will be successful. It would be an agreeable amusement to make trials of this kind, if nothing more could be expected from them than the pleasure of studying nature. But with a little prudence in the management, 'tis not impossible but they should lead at last to some valuable discovery. 'Tis hard to tell how much the cyder of one acre might be worth, if it were of the best kind;

some in England sells upon the spot for eight or ten pound a hogshhead, which, at the rate of ten hogshheads to an acre, affords the owner a return which very few crops can equal; and this profit in the end may be the reward of every person who will turn his thoughts that way.

To direct those who are willing to engage in experiments of this nature, it may be useful in the remainder of this paper to give them a general notion of what may be expected from the several kinds of fruit; particular instructions on this head would be needless, and indeed impossible, since the peculiarities of every kind of apple cannot be enumerated; but the chief and leading characters, common to several kinds, every man should know who engages in this business.

Summer fruit or sweet apples afford a weak, pert, windy juice, agreeable enough to the palate from its liveliness and tartness, but in a great degree unwholesome. It has no body, and therefore will not keep, and scarcely deserves the name of cyder.

The permain, red-streak, nonpareil, and golden pippin, yield a palatable liquor, which, with something too much sweetness, has however a delicate, high, racy taste, and keeps tolerably well: this cyder is in great esteem with those

whose palates are not seasoned by the frequent use of the rougher kinds; but critics don't admit it among the better sorts, and place it only immediately above the summer cyder: 'tis however probable that it is capable of improvement, and when thoroughly well made, may obtain among its kindred liquors the same rank, which, among wines, is assigned to canary, and the other richer kinds.

Wildings and harsh winter apples may be ranged in a third class; their juice is strong, generous, and vinous, and affords the several kinds of cyders which are known by the name of the rough cyders. Among those, some retain the flavour of the apple, and betray, to a nice judge, the fruit from which they were extracted, while others are entirely vinous and leave a neat, spirituous, and lively taste upon the palate; hence ariseth a considerable difference in rough cyders, which in effect constitutes two different kinds, both good indeed, but not in the same degree; the taste of fruit upon the liquor, being always reckoned a defect; and that the most perfect flavour, which is most neat and disengaged from all peculiarities whatever.

To attain this should be the aim of all those who deal in cyder, and the harshest, roughest kinds of apples afford the best prospect of success; their juices require indeed to be kept a

long time before they part with their wild, raw, and grating taste, but when mellowed thoroughly by age, they make ample compensation, and become the neatest and the finest cyders: of this kind, the cackagee, burlington-crab, kendrick, and royal wilding are the best fruits hitherto known in Ireland, and 'tis from them, either single or mix'd together, that the greatest improvements in our cyders must at present be expected. A few years hence we shall be able to add to these the stire, foxwhelp, woodcock, whitfoot, and underleaf, lately propagated here from England, and in great reputation there. In the mean time 'tis upon the former that gentlemen should employ their industry, and make their first experiments. What assistance we can give them in determining the degrees of ripeness, sweating, and fermentation requisite, or in explaining the best methods of pressing, curing, racking, and keeping cyders, they shall find in the following papers.

This we shall conclude by a caution of great moment to those who are willing to try what may be done by mixtures.

'Tis usual in this case to mix the apples before grinding; but the mixture of the juices drawn singly from every kind is certainly more adviseable. The peculiar qualities of every apple are this way more certainly distinguished, the

WEEKLY OBSERVATIONS. 143

proportions more justly ascertained, the defects of any composition more readily discovered and corrected, and the whole work carried on with greater nicety and more exactness. M. P.

N^o XXIV. *Tuesday, June the 14th, 1737.*

TIS of great importance in making cyder that the fruit be thoroughly ripe. The juices of raw apples retain their harsh, sour taste in spite of all endeavours, and never acquire that racy, mellow flavour which the sun only can bestow. Sweating together in a heap will, indeed, give them an artificial ripeness; but this is no equivalent to that which they receive from nature, which admits of some assistance from the industry of man, but can never be compleatly imitated by art. This is true, in a lower degree, also, of the mixtures of ripe and unripe fruit, which never afford good cyder; the latter spoil the former, and communicate their green, raw taste to the whole mass.

It should be therefore the first care of every one, concern'd in making cyder, to let his apples hang upon the tree, 'till they arrive to their maturity: for this no certain time can be assign'd; it varies with the nature of the fruit, or the circumstance of the season; different apples have different times of ripening, and the same, ac-

cording to the weather, change their times considerably from one year to another; but signs there are sufficient to direct the gardiner: the brownness of the kernels, their rattling in the apple, the fragrant smell of the fruit itself, and its falling in calm weather, are certain indications, which in all kinds, may be depended on. 'Tis however an useful caution in this, as in every other case, to err on the right side, and to let the apples hang too long, rather than too little. Summer fruit, indeed, will suffer by this method, grow pulpy, dry, and mealy, and afford little or no juice; but as the summer cyder is a liquor scarce worth making, this is an exception which hardly deserves our notice. In every other case the rule is good, and in the best fruits, most; the harsher kinds can hardly hang too long, and daily mend upon the tree; their juices mellow, throw off their crude and watery parts, and consequently, as they grow less in quantity, improve proportionably in quality. 'Tis even probable, that the necessity of sweating winter fruits might be removed, by leaving them upon the trees somewhat longer than is requisite to ripen them; no reason hitherto appearing to think that this fermentation by sweating serves any other use than to encrease the degree of maturity, which the fruit had acquir'd upon the tree. 'Tis, indeed, possible that it may answer

further purposes, and dispose the fruit to an easier emission of its juices: and as our reasonings upon nature frequently lose their way, where experience does not guide them, 'tis from trials only that we can form a judgment to be thoroughly depended on: recourse must therefore be had to accurate experiments, which in this case are easy, and will certainly quit cost; for which ever way the question be determin'd, something must be found very well worth the knowing. Should sweating answer some purpose not to be attain'd upon the tree, it will, when once discover'd, ascertain the nature, the use, and the degree of sweating: or should nothing of this kind appear, it will correct a practice, which, if it does no good, must certainly do mischief: since it is evident to common sense, that if maturity be all that is wanting, it is more perfectly, and more naturally attain'd upon the tree.

When your apples are fit for pulling, 'tis essential to chuse dry weather for that purpose; water is a bad ingredient in all vinous liquors, and should, with a peculiar nicety be guarded from your fruit. That which adheres to it after rain or dew, or even the smaller quantity of moisture, which it might contract by falling or lying upon grass, is sufficient to impoverish your cyder in a sensible degree. Gather your

fruit therefore in the driest day, and in the driest part of it, when the dew is thoroughly exhaled, and, if feasible, at a moderate expence, gather it by the hand. This method is, perhaps, impracticable in plantations of great extent, and where the trees are very tall; but wherever it can be us'd, it is of great advantage, and certainly quits cost: You then can chuse your apples, and leave those upon the tree which are not of a sufficient ripeness, you save your fruit from bruises, and your trees from the damage they frequently receive, by violent unskilful shaking.

Where this method cannot be observ'd, strew the ground under the trees with straw of sufficient thickness to save the apples in their fall, and cover this again with blankets; then with an easy motion shake the boughs successively, removing, at every shaking, the apples already fallen, that they be not wounded by the next; by these means all your apples are kept dry, and, for the most part, free from bruises; with a little additional care you may also, in this method, separate the fruits according to their ripeness; for if you proceed regularly from bough to bough, and give each a gentle swing, the ripest will fall first, and the unripe remain upon the tree till more violent motion brings them down. Some curious gentlemen have al-

ready proceeded in this method, and carried the fruit, thus gathered, directly to the grinding mills, without any previous sweating; the cyder it afforded, as far as we have been informed, was some of the best they ever tasted; and when a greater number of experiments shall be made, we doubt not but the success will evidently prove, what we have only hinted before, that sweating is unnecessary when the fruit is ripe.

However, as 'tis the safer way to look upon this as still a question to be hereafter more leisurely considered, and that, besides, sweating is there, at least, of undeniable advantages, where the fruit is not full ripe, we shall add some directions on that head, that while this practice is continued it may be so in the best way.

The material points to be observ'd are these, That the fruits be separated according to their different degrees of ripeness, and that your floor be as dry as it is possible. In the first, the more nicety is us'd the better, and the more the fruit in every heap is alike in its maturity, the sooner the sweating will be over, and the less damage will accrue to the best and ripest apples in the heap. However, If care be taken that none be put together very ripe and very green, the injury will not be great; but if this should be neglected, as it is frequently the case, either your ripe apples will grow rotten, or your green

fruit be still unripe, and in one or other of those ways, your cyder considerably spoil'd. Boarded floors will answer the second caution best: they are the driest, and therefore preferable to any other; however, earthen floors cover'd some inches deep with wheaten, rye, or oaten straw, will do tolerably well; but to heap them up in your orchard, or, any where else, on grass, or an uncover'd floor, where rains and dew have free access to them, is the ready way to make your cyder weak and watery, and frequently besides musty and ill tasted.

Were we thoroughly perswaded that sweating is of real benefit, we should advise the gardiner to raise a store-room near his orchard, over his mill and press which should occupy the lower floor, where his apples might be laid to sweat, and thence convey'd into his mills by a proper and convenient trunk: As it is we shall only say, that those who will proceed in the old method, and have large quantities of fruit, must be provided in this manner before they can expect any tolerable success. The time of sweating cannot be determin'd by any other rule than by the ripeness of the fruit. Different kinds require different lengths of time, from eight or ten days to six weeks: in general, the harsher the apple, the more time it wants; particulars experience must determine.

WEEKLY OBSERVATIONS. 119

Were it the gardiner's only business to make the most valuable cyder, however small quantity, we might end these instructions here; but as it is to him of great importance to make the most of that portion of his fruit which will not afford the best, we shall add a few directions to the purpose.

Windfalls, as they are generally call'd, bruis'd apples, and those which remain unripe upon the tree, should not be mix'd with your choice fruit; without this caution 'tis in vain to expect good cyder, you may have large quantities indeed, but always proportionably bad. This fruit, however, need not be thrown away, that part of it alone excepted where the bruise appears black and mouldy, a small quantity of which will communicate a nauseous and offensive taste to the whole mass. The rest will make inferior kinds of cyder; and provided you take care that your windfalls do not lye too long upon the ground, and don't expect a keeping cyder from bruis'd apples: they will answer tolerably well. To prevent mistakes it may be necessary to add here, that our objections against sweating are absolutely confin'd to the choicest, ripest fruits. Windfalls, and all apples that are not perfectly ripe, do undoubtedly require it: being depriv'd of the natural maturity, they want an artificial ripeness, and must

borrow that from art which they can no longer receive in a better way. M. P.

N^o XXV. *Tuesday, June the 21st.*

THAT we often make very bad cyder in this country out of our choicest fruits, is, in a great measure, owing to the neglect of those directions which made up the bulk of our last paper. Most of those who have large orchards, and universally all those who make a trade of buying such, gather their fruit unripe, and mix their apples of every kind together, without the least regard to their different degrees of maturity. They throw ripe and unripe, bruised apples and windfalls in a heap, and let them take their chance in an open orchard, expos'd to rain and dew, or, at best, on a damp earthen floor, where they leave them, not till they are fit to grind, but so long only as suits their own conveniency: In this way 'tis in vain to expect good cyder; it will be harsh, raw, and disagreeable, a crude mixture of undigested juices, and notwithstanding the little help it may receive from white syrups, or any other corrective, bad and unpleasant after all. This is an error in the first concoction, which no ensuing care can mend, and therefore we must insist upon it, that without a just regard to the in-

WEEKLY OBSERVATIONS. 151

structions in our last, all the pains that can be taken afterwards are plainly thrown away.

We shall therefore proceed in this and the following paper upon supposition, that gentlemen have gathered as much of their fruit, as the season would allow them, in its highest degree of maturity; that they have sorted their apples, at least, the most valuable kinds, particularly the fire, underleaf, fox-whelp, and gold pip-pin, which hitherto have not been found to answer well in mixtures; that their unripe fruit has lain to sweat upon dry floors, guarded from all damp, by a good roof over head, clean, sweet straw underneath, and a convenient interval between them and the walls on either hand; that it there has ripened, which the summer fruit will generally do in ten days, autumn apples in a fortnight; the first winter apples in a month, and the latter harsher kinds in six weeks, or thereabouts; and lastly, that their bruised fruit, and that which is any ways red rotten, is separated from the rest to be put single in the mills: till this is done, 'tis in vain to hope success; but that great business over, the rest is easy, and as follows:

Apples that have lain any time in heaps are generally cover'd with a clammy sweat, wipe this off; it is a watery juice, and impoverishes your cyder.

When thoroughly dried, reduce your apples to a pomice, by pounding or by grinding them. The method of pounding in a trough is too well known to require description; it is a tedious and expensive way, us'd only by such as have small orchards; and even those, if they are curious, will soon change it for a better: it performs its work unequally, and with waste; much of the liquor is dash'd out of the trough, and when some apples are beaten to a paste, others are hardly broken.

Grinding is performed by two several engines. The first resembles a tanner's mill, and consists of a circular trough to contain the apples, within which a large flat stone moves round upon its edge, to grind them. The second grinds the apples between two cylinders or tumblers, both arm'd, for that purpose, with broad iron teeth, or wooden cogs, which, by their pressure against one another, as the tumblers turn, drag down the apples, and squeeze them to a pomice. In this machine the apples are plac'd in a hooper, over the tumblers, from whence they fall by their own weight, and continually supply the mill. Descriptions in writing are never accurate, and therefore it would be impertinent to detain the reader by a particular account of these machines: they may be seen in twenty places, and the DUBLIN SOCIETY has models of them both,

which they have order'd to be shewn to every one that calls for them. The curious may at the same time inspect a third machine, that works with two pairs of cylinders at once; the upper pair to break, and the lower pair to grind the fruit, and thereby in half an hour acquire a juster notion of the several cyder mills in use, than we could convey to them by the most elaborate description.

Our proper business, if we had sufficient information, would be to determine which of these machines has the advantage of the rest; but for want of trials, we can hitherto give only our conjectures. The cylinder mill certainly works most equally, and if any purpose can be serv'd by it, may be set to grind either coarser or finer as you please. This is undoubted, that to make experiments, without which there can be no improvement, it is greatly superior to the other. By setting the cylinders at different distances, you may grind your fruit of different fineness, and if there be, as most probably there is, a degree of fineness, where it yields most or best, this engine will discover it. However, as the other mill makes more dispatch, and grinds the kernels which meliorate the flavour of your cyder, we shan't pretend to give the preference to either.

When the apples are ground, some carry

them directly to the press, others with more reason, empty them out of the trough or receiver wherein they fall from the mill, into tubs, or large, wide, shallow vats: this work is done with most ease by broad wooden shovels; these also serve to turn your pomice in the vats five or six times a day, to prevent any fermentation: the whole is intended to give the pomice a red colour, which heightens that of your cyder afterwards, and brings it to a deep, fine amber. This business is over in two days.

From these vats your pomice goes directly to the presses: of these there are several kinds, but all reducible to the two mechanic powers by which they act, the lever and the screw. The lever presseth the fruit by a heavy weight, suspended at the end of it. The screw mill consists of a wooden screw and nut, generally of elm, wrought by three or four men forcing it round with levers, in the nature of a capstane. It acts upon the pomice by squeezing it between two planks, in the lowermost of which there is a gutter to carry off the liquor, till it has yielded all its juice. In both these, that it may not slip from the pressure, the pomice, or, as it is then call'd, the cheese, is confin'd in hair bags, holding each of them from two to three bushels, or as much as the mill can grind at once, and heap'd over one another till the press is full. The larger presses will

hold from eight to fifteen bags, which yield according to the largeness of the cheese, from one hundred to two hundred gallons. Of these bags, to perform the work neatly, 'tis necessary to have two sets; for they clog and furr in pressing, and become unfit for use till they are wash'd and dry'd; and, while this is doing, either the press must stand, or another set be ready to employ it.

Instead of hair bags, some use long straw, laid under the pomice, the ends of which they turn up over it, covering them again with fresh straw, and that with another layer of pomice, till they fill the press. Any of those ways will do; but those who are desirous to work neatly generally use the screw and bags.

'Tis usual to dispose of all the liquor press'd out of the cheeses, the same way, and without distinction; but if the analogy holds between cyder and other vinous liquors, this must be a considerable mistake. There is a great difference between the first yieldings of the grape and the juices they afford on further pressing, and always to the advantage of the former, and if the same be true of cyder, we lose our richest, choicest kinds, by an imprudent mixture of the whole together. The trial is easy, and we beg leave to recommend it to our readers. To make the experiment as full and accurate as

possible, it would be proper to divide the juices arising from the same kind of apples into three distinct parts. That which comes from the apples without pressing, that which runs off first from the press, and that which is forc'd out last; working and tunning them asunder. The reason of this division is taken from the nature of the fruit, which being more watery than grapes, may probably yield a weaker juice at first, and the best and strongest only towards the middle of the operation. However, the last juices must certainly be loaded with dregs, and, therefore, the least valuable of the three. Some gentlemen, more curious than ordinary, in the management of cyder, have given us the hint of this threefold division, assuring us from their own experience, that the first and last yieldings of the fruit are vastly inferior to the rest. However, as they are contradicted by some others, who, as it is in wine, affirm the first juices to be best, we propose it only as a query to be resolv'd by further trials, and we hope our readers will make it their business in the approaching cyder season, to try this and the many other experiments which we have recommended to their observation. The result of them we shall wait for with impatience, and publish with great pleasure.

P. M.

N^o XXVI. *Tuesday, June the 28th.*

WHEN the business of pressing is once over, and the liquor strain'd through a hair sieve, to separate the coarsest dregs from it, which is a practice every way-advisable, you must leave it for some time to itself, till it has gone through a necessary fermentation, and deposited its grosser lees. To this purpose some dispose of it immediately in hogsheds, others in large tubs or vats, and the most curious in a vessel intended for that very use, fix'd upon a stand, or stilling, provided with a tap at bottom, and containing five, ten, or twenty hogsheds. In these the heavier lees subside, and the lighter form a crust at top, which, by its sinking afterwards gives you timely notice that the ferment is gone off, and your liquor fit for racking. This, therefore, should be closely watch'd, and upon the first appearance of its falling, the cyder, which is then become tolerably fine, drawn off the grosser lees, and tunn'd into the hogsheds. The usual time taken up in this primary fermentation, is from thirty six to eight and forty hours, more or less, according to the weather. Some affirm that they have had good cyder by tunning it directly from the press, without any other caution than leaving room for

the liquor to ferment within the hoghead, where it remain'd from first to last: but this method is liable to many hazards, and successful, where it has been so, only in favourable seasons. The gross lees are apt to rise on every considerable change of weather, and when they do, set the cyder on the fret, which, should it do no worse, certainly robs it of its spirit, and, when over, leaves it flat and vapid. Besides, 'tis agreed from repeated trials, that sourness in all fermented liquors begins ever at the lees, and therefore the more of them you leave among your cyder the more readily it will turn aigre.

Supposing therefore that the cyder has fermented in some of the vessels above-mentioned; it remains to tun and keep it. To this purpose nothing is more material than the choice of proper vessels; cyder, of all liquors, being apt to take the taste or tang of the cask most readily. New vessels, though the wood is ever so well season'd, generally give a disagreeable relish to all liquors, and will do so especially to cyder, without proper care before-hand. Frequent scalding with hot water, into which some handfuls of salt have first been thrown, or with water in which some of your pomice has been boil'd, fumigating with brimstone, and washing after all with cyder, are the usual remedies a-

gainst this evil, and seldom fail of removing it effectually. Of old casks, beer vessels are the worst: they evermore spoil cyder, as, in return, cyder casks infallibly spoil beer. Canary and brandy casks do well, and all wine vessels tolerably; and provided the tartar, adhering to their sides, be carefully scrap'd off, and they well scalded, there is no danger in the use of them. In scalding them 'tis a circumstance worth knowing, that boiling a parcel of dry wormwood in your water, and taking a brush of the same plant to rub and scour the sides, corrects the acid of the tartar, and is therefore of advantage. It is also worth observing, that those who advise fumigating with brimstone confidently affirm that the cyder is stronger, and keeps better where the vessels have been so prepared, and upon that account they tun immediately after the operation, and before the smoak evaporates. To enable, therefore, every one who pleaseth to examine, by fair trials, how far this is true in fact, we here add the neatest method of performance. Melt a pennyworth of brimstone, and dip a large piece of new cloth or of canvas in it, till the brimstone is all imbibed, and the cloth or canvas looks like a piece of searcloth; then roll it close, tye it, and with a wire suspend it at the bung, three parts in four within the vessel; light it, and let it burn till it is ready to

fall into the cask, then remove it, and tun without delay.

We come now to a point of great importance, and hitherto of as great uncertainty, which has rais'd among the curious a controversy of long standing, and not likely to come speedily to a decision without a course of regular experiments. Some virtuosi tell you that continued fermentation and repeated racking certainly spoil your cyder; others as confidently say, that without them ye never will have good. Some rack once, some twice, others whenever the liquor frets. Some look upon the lees as the food and nourishment of cyder; others as a cause at hand, upon every change of weather, to set it on the fret, and turn it sour. Every man has a system of his own, and a peculiar practice consequent thereon; and so great is the variety of methods, that nothing certain can be drawn from them but this one general conclusion, that we are still at guess work, and must be oblig'd to future trials for any rules that can be thoroughly depended on. Our business, therefore, is to set the several ways in use before the reader, and recommend accurate experiments to be made on each.

One method is, to leave the cyder in the vats, mention'd in the beginning of this paper, some days longer than is there advis'd, and till it fines in a great measure, then to tun into hogheads,

WEEKLY OBSERVATIONS. 161

where it remains without any farther racking. Those who recommend this practice say, their cyder is the stronger and mellow: and those, who object to it, reply, that lying on the grosser lees, which cannot all be fallen in the vats, it must be apt to fret, turn foul, and in unsettled weather aigre.

'Tis a second and more common method, a fortnight after tunning, to rack into other hog-heads. There the cyder undergoes a second gentle fermentation, and while it lasts the bung must be left open; afterwards, when the ferment lessens, cover'd only with a wet cloth, or tyle, and when it is quite over, stop'd down close with well temper'd clay, kept moist to prevent its cracking, by a handful of bay-salt strew'd over it.

To this second racking others add a third in March or April, when the lees have thoroughly subsided. This again is follow'd by a little fermentation, and for that reason chiefly objected to by some, who think every fermentation hurtful that is not strictly necessary.

Others, on the contrary, particularly those in Devonshire where they make the strongest cyders, who look upon thorough fermentation as the great secret to have their cyder fine, light, and free from dregs, not only approve

that method, but proceed much farther, and as follows.

At first tunnig they do not fill their hog-heads to the bung, but leave an empty space to receive a pailful of fresh cyder from the press: this renews or encreaseth fermentation, and sets the whole on working with some violence. The froth which riseth at the bung they are careful to skim off, and the waste of liquor thus occasioned they constantly supply with unfermented cyder. By these means the whole is kept upon the fret for a considerable time; and 'tis not uncommon in this way to have cyder working for a fortnight. A month after this operation, and the stopping of the vessels, the cyder must be rack'd, and generally speaking, in two months more a second time. And if it frets, which however seldom happens in this method, a third and a fourth time.

Among these several methods to make a proper choice, they should all be tried together, with the same fruit, and of equal ripeness; the cyders kept to the same age, and their different qualities observ'd. In any other way you receive no information, and the want of accuracy and exactness makes the experiment fruitless and insignificant. Every one will tell you of his method, that it affords good cyder; but this general expression gives no determinate idea, and

WEEKLY OBSERVATIONS. 163

forwards knowledge very little. Would gentlemen be at the trouble to keep notes, and enter all the differences observable in the same cyders under several managements, we might know in a little time what method gave the strongest, which the neatest, the roughest, mellowest, or lightest cyders, and pursue accordingly, every one as his taste or interest will lead him, that which would answer best. But till something of this kind be done, we can expect but very slow and inconsiderable improvements.

In the mean time, the few points which experience already has determined we shall here lay before the reader. Namely, That weak cyder cannot bear above one or two rackings without too great a loss of spirits. That strong cyder, made of harsh winter apples will stand several rackings, and thereby grow the mellow, and sooner fit for drinking. That the more you ferment the liquor, the rougher it will grow. That fermentation is no other way so well promoted as by putting into your hog'shead from time to time some of the liquor fresh drawn from the press. And lastly, that if you would have a rich, racy, palatable cyder, a little inclining to the sweet, you must after your liquor grows fine, prevent as much as possible any farther fermentation. And if the liquor should be

foul, isinglass will help to fine it, by precipitating the flying lee.

Before we leave this head, it is to be observ'd that all mixtures, whether of one cyder with another, or of cyders with white syrups, treacle, or other correctives, which are necessary when the cyders are ill made and too harsh, are best tim'd when you are racking. The fermentation, which always follows racking, incorporates the several ingredients, and makes one liquor of the whole. Those who use syrups will be glad to know that the quantity thrown into a hog-head is from one quart to six, according to the harshness of the cyder.

At what age cyder is fit for drinking cannot be exactly settled. Summer cyder is at its best in six months or something less. Autumn cyder in about a year. The rougher winter kinds will require much longer time; two years at least, and some from three to five.

Whether cyder is improv'd by bottling is a question the palate must resolve. Generally speaking 'tis best lik'd out of the cask. However, where your vessels are not very tight, or the consumption slow, 'tis requisite to bottle it; for if air finds passage into your cask, or the head of the liquor falls it will certainly turn sour.

'Tis possible some less material circumstances

WEEKLY OBSERVATIONS. 165

may have escap'd our notice in the course of these directions. If any such there be, that deserves to be consider'd, we shall readily resume the subject. At present we shall take leave of it, and of the reader for some time. The DUBLIN SOCIETY is now adjourn'd as usual, and till they meet again, these Weekly Essays cannot be carried on. The first Tuesday in October is appointed for their meeting, and they hope it will be an agreeable promise to their readers, that they will then certainly resume these papers.

P. M.

N^o XXVII. *Tuesday, October 11, 1737.*

WHEN the Society took leave of the reader in June last, they promised to resume their Paper on the first Tuesday in October; but as their meeting was postpon'd, by the absence of many members, their Observations have necessarily been delay'd. This apology, for the inconsiderable transgression of one week, might have been omitted, had not the impatience of the town call'd upon us to give some account of a seeming negligence, and to assure the public that the Society has lost nothing of that zeal and spirit, which gave rise to this and all their other undertakings.

On the contrary, they have now reason to

proceed with more chearfulness and vigour: their endeavours have been so well received, and the prospect of success is become so promising, that the diffidence and fearfulness, which constantly attends beginnings and discourages all new attempts, is chang'd at present into alacrity, and a rational well grounded hope of being useful to their country.

They have observed, with particular pleasure, that the papers which relate to the culture of flax and flax-seed have been, in a distinguishing manner, well received; and tho' prejudices hold out still in some places against reason and experience, that with the greater number their directions are favourably consider'd, and bid fair for universal approbation.

As the linen manufacture is, and must be, the main support of trade, and the chief inlet of riches in this kingdom, it must give them a more lively satisfaction to be useful there, than in any other point. Improvements in any branch of business will indeed adorn the kingdom; but this maintains it: whatever affects that, affects our very vitals; and to correct an error there, or introduce an advantageous practice is therefore eminently beneficial.

Upon this account the Society will always bestow upon it more than ordinary attention, and

give instructions on that head the preference they deserve.

Our several mistakes have been observ'd upon in some former papers, and set in opposition with the more rational and frugal methods of our rivals in the linen manufacture, as far as it was necessary to direct the farmer; but where his business ends, another, and a more considerable one begins, in which our errors are probably as numerous, and as pernicious in their consequences.

That we hitherto have been oblig'd to other markets for our seed, and wrought up half ripe flax into our cloths, is chargeable upon the wrong notions of flax-husbandry entertain'd among us, but it must be owing to further mismanagement, and other causes, that all foreign dealers undersell us, tho' land and labour are considerably cheaper here than in most linen countries. The difference is too great to be laid entirely upon the purchase of our seed at a dear rate—Other reasons must unhappily concur with that, which would otherwise be abundantly compensated by lower rents, and lower wages.

What those are is indeed a disagreeable inquiry; but it is a necessary one. Remedies cannot be applied successfully till the disease is known; and tho' the cure may even afterwards

be difficult, 'tis however the first step towards it, to find out the latent causes of the evil.

In the case before us they are numerous, and some of them not easily removed.—We must learn that valuable secret of parting with some present profits in hopes of considerable returns, and buy riches in reversion before we can succeed.

To speak plain; 'tis not possible our manufacturers should sell cheap, while their cloth, besides the price of the materials, and the value of their labour, is loaded with the rent of all their little holdings. This, however, is notoriously the case in those provinces where the linen trade has taken root. The gentleman's usual expedient to enhance the value of his land, is, to set in small parcels to the manufacturer, who pays, perhaps, a double rent, and certainly has only a half crop; the rest he must find somewhere, and charges it upon his linens, which, by this destructive management, come dearest to the market from one of the cheapest countries in all Europe.

The remedy is obvious: setting land to none but husbandmen, and tenements only to manufacturers, as it is the plainest dictate of common sense, and the practice of every nation under heaven but our own, would undoubtedly remove the evil, with a trifling loss, indeed, to

the landlords for the present, but with immediate advantage to the kingdom, and to themselves considerable profit in reversion.

As this is a point of great importance, it is worth while to be something particular upon it, and to point out distinctly the many inconveniencies which attend the present management. The land occupied by a manufacturer is commonly not half till'd, and, as it was already hinted, he pays a heavy rent for a light crop. His want of knowledge and experience, and his impatience to return to the loom, prevent that care and diligence which good husbandry requires. He cannot be supposed to understand the business of the field, to acquire dexterity and neatness in the performance of it, or to bestow sufficient time upon it, who attends it only in the second place; and accordingly the awkwardness of one of these half-bred farmers at the plow, the harrow, or the spade, is easily observable; and might afford abundant room for raillery, were it not that it affects the common-wealth too seriously, and too severely, to be ludicrously treated: nor indeed can it be otherwise. Arts less difficult than husbandry require unwearied practice, and where the hand only is concern'd, 'tis obstinate and constant exercise alone that can make it perfectly obedient to the artist.

Hence the landed manufacturer suffers in a double sense: he is not only a bad farmer, and in his crop a considerable loser from his want of time and skill, but he is less handy also at his loom, and works even there at a disadvantage. The readiness and the neatness of the execution depend so much in every art upon daily repetitions of the self-same motions, that the least interruptions are pernicious, much more, where those interruptions, from one business, are fill'd up by attending one another, which requires different motions, and those violent. The most uncurious observers are so fully satisfied of this, that 'tis usual to hear common artificers complain, that their hand is out for want of practice, and in that expressive, tho' vulgar phrase, lament the ill effects of interruptions.

It would be difficult to calculate exactly what this double loss amounts to: in the article of farming 'tis probably a favourable supposition to estimate it at half value, and in the manufacture, where the gains of the artificer depend entirely on his own readiness and skill, the deduction is evidently more considerable.

Hence, upon a modest computation, by blending these two arts together, half the produce of our industry is lost, and the strength and labour of our people inconsiderately wasted. Two men severally employ'd, one in the business of

the field, and the other at the loom, would do the work of four who attend on both together, and the present labour of the nation be carried on with half the hands; or to state the case more justly, the self-same hands, which at present till our grounds, and work our looms, would, by proper management, afford double profit to the nation.

M.

N^O XXVIII. *Tuesday, Oct. the 18th, 1737.*

IN our last paper we considered the bad effects of blending together arts entirely different. In their nature, and carrying on by the same hands the husbandry and manufactures of this kingdom. We observ'd that no material improvements in either could rationally be expected till they were separately managed, and independently of one another; and that the nation suffer'd equally at present by the unskilfulness and awkwardness of the farming manufacturers, in the business of the field, and at the loom.—And here the argument might rest, if it could be hoped, that all are so happily disposed towards their country, as to be in every case determin'd by the interest of it alone; but as this were a romantic supposition, and unfortunately for this kingdom, too widely distant

from the truth: it will be necessary to consider how far the interest of private persons coincides with that of the commonwealth, in the instance now before us.

That the manufacturer's advantage is the same with that of the nation, in this case, will admit of no dispute. 'Tis not possible but he should be the greatest gainer by his own readiness and skill, and feel the good effects of assiduous industry in the first place. 'Tis indeed a necessary consequence of the scheme recommended in these papers, to lower the price of manufactures, and upon this account especially it is recommended to the readers; but this would be obtained without any loss to the artificer, who might earn greater daily wages in the end, tho' he wrought in effect at easier rates. 'Tis well known by dealers in the linen, that they can find their account much better in employing some weavers at two shillings, than others at half price; or to speak the same in other words, that a thorough workman can undersell a bad one by one half, with equal profit to himself; and upon this account alone tho' our linens were considerably lower'd, superior skill and readiness would secure superior gains to our artificers as they improve.

Besides this, which had been hinted at in the last paper, there is another source of greater

WEEKLY OBSERVATIONS. 173

profit to the manufacturer by abstaining totally from husbandry. In proportioning the price of industry, larger gains have been prudently annexed to those kinds of occupations, which require instruction and docility in youth, to go thro' them with dexterity and neatness. The early and wearisome attendance of an artificer upon his business, before he can attain any degree of skill, is allowed for afterwards, and estimated in his wages, which are therefore considerably rais'd above the current price of bodily labour only. Hence the manufacturer who supplies the place of a common labourer in his farm, and few there are who are not guilty of this blunder, bestows his time and pains certainly below half value, and undoes himself by his mistaken diligence. 'Tis a little odd that our people should want arithmetic to calculate that two is more than one, or which is nearer to the truth, that he that works for sixpence at the spade, while he might earn two shillings at the loom, is eighteen pence a loser; but since in fact they overlook this obvious truth, 'tis the duty of those who should know better, to serve them against their will, withhold from them a temptation which they are not able to resist, and refuse them any larger holdings than a tenement and garden.

It would be an additional advantage to this

scheme, to gather all our manufacturers, who in most places are dispers'd about the country, into little villages. 'Tis obvious that emulation, and consequently diligence and skill, is the natural effect of bringing artificers together who are engaged in the same business: they necessarily improve each other, either by mutual assistance, or at worst, by mutual endeavours to outdo every one his neighbour: one way or other the public is benefited by them, and the manufacture considerably advanced, either by their friendships, or their jealousies. From these, and perhaps from further reasons, 'tis a matter of experience, that wherever chance, or the advantages of situation, have brought together manufacturers of the same kind, the art itself has been improv'd in proportion to their numbers, the work done at easier rates, and with greater neatness and dexterity: even in the case before us, tho' the instances are indeed too few, 'tis however certain that those among ourselves are the best skill'd in the linen manufacture who have their residence in little towns.—They exceed the country-weavers every way, and have the advantage equally in the quickness and truth of the performance.

It has been observ'd already, as the only objection to this scheme, that probably it would affect the rents of some estates, which are now

parcell'd out to manufacturers: but even this single inconvenience would attend it only for a season, and be abundantly compensated by greater rents hereafter, better paid, and with more ease incomparably to the tenant. This if it be true, reconciles all interests, and recommends the scheme to every order and rank of men among us: the public and private advantage coincide, and there is no farther room for argument.

To prove this therefore, it may be laid down, as a first principle, that the lower kind of manufacturers work at second-hand for the profit of the landlord. The commodities they consume are almost without exception of the growth of our own country, and the more they earn by their labour, the more of these undoubtedly they will bestow upon themselves. The intentions of an industrious weaver is seldom, if at all, to hoard.—To live comfortably, to feed and clothe himself and family well, and decently, is the height of his ambition, and the only reward he has in view. Hence as his gains encrease, his consumption is enlarg'd, and by a necessary consequence, the demand, and, along with it, the price, of the requisites of life. This advances the farmer's profit from his crop, raises the value of his lands, and ends at last in the advantage of the landlord.

A small village, well stock'd with manufacturers, would be a ready market to the neighbouring farmers, and take off the crop of a large circuit at good rates and easie carriage; and if all the weavers in the north were thus parcell'd out in little settlements of fifty, threescore, or a hundred families, there is scarce a farmer in that province, who would not be within two miles of some of them. How high the husbandman estimates such a situation, no one need be told who is any way conversant in the country. Lands of the same goodness yield treble rents in many places, upon this account alone, and from the neighbourhood of a large town, frequently much more. 'Tis not indeed to be imagined the farmer could raise his rents, in that proportion, from the proximity of a small village.—But something certainly he might, and probably much higher than what the manufacturer pays at present. That alone is sufficient to clear the argument before us, and that will hardly be denied by any who collect together the several hints dispers'd in these two papers. That the manufacturer by greater skill and undivided industry must earn considerably more.—That his additional gains will be bestow'd in purchasing commodities from the husbandman in greater quantities, and at higher rates.—That the farmer must sell his crop to more advantage, where

there is a great demand and ready markets.— And that the crop of an understanding and laborious husbandman will by far exceed that of an artificer from the same ground.— These are the several assertions in these papers, and if they are true, the conclusion is certainly a good one.— That by the scheme propos'd, the commonwealth in the first place, and afterwards in due order and proportion, the landlord, the tenant, and the manufacturer would receive considerable and lasting benefit.

M.

N^o XXIX. *Tuesday, October 25th, 1737.*

HAVING sufficiently considered one main and obvious reason of the exorbitant price of linens in this country, notwithstanding the advantages of easy rents and easy wages, and assign'd the only remedy which can effectually remove the evil; 'tis now time to proceed to other causes which unhappily concur with that to disable the Irish dealer from selling at reasonable rates.

'Tis an usual complaint, and too well grounded, that our linens travel thro' more hands, before they arrive at their last market, than perhaps any commodity in Europe. Many pieces have been bought and sold in the same fair

three, four, some, probably, ten times within the compass of few hours; and, from the loom to exportation, 'tis certainly a moderate allowance to reckon five buyers to each parcel. This, as every man expects a profit, must enhance the price considerably, and becomes a weighty tax upon our linens, and, what is worse, a tax in a double sense pernicious as it serves only to encourage idlers. Our people are not naturally too industrious, and while they can earn their bread by walking about a fair, and watching bargains, as they call them, 'tis hardly to be hop'd they will chuse a more laborious calling. These observations are so plain, that they cannot want enlargement.—It may, however, be worth the while to add, that this practice, which would be every where an evil, is emphatically so in Ireland; because our dealers trade upon small stocks, and therefore require large profits.—And, certainly, if you multiply your dealers, and they, at the same time, must gain considerably, or starve, 'tis not possible but their commodities should be over-rated in the end.

'Tis, indeed, generally thought, that since the linen-hall has been erected, this pernicious practice is something less prevailing in the north, and that there are now more undertakers, who employ weavers by the year, and encourag'd by the conveniencies provided for them, bring up

their own linens to the market. Those that do so, certainly deserve our thanks. They set a good example, which, whenever it is follow'd universally, must be attended with very considerable advantages, and remove in a great measure, the incumbrance on our manufacture complain'd of in this paper.

What remains upon this subject will be best convey'd in the words of the ingenious author of *Some Considerations on the Improvement of the Linen Manufacture in Ireland*; not only because he has express'd himself as well, at least, as we could hope to do; but, besides, because in handling his argument he toucheth upon several particulars, which we design minutely to consider in some of our following papers, and thereby gives us an opportunity of laying a bill of fare before the readers—a short account of what we now design to go upon for his entertainment and instruction.

‘ Another disadvantage to our linen manufacture is, that the flax-dressers are not made a distinct and separate trade, or branch of the business. The foreign flax-dresser hath by this means, vastly the advantage of ours. Constant application to this single business gives him both knowledge and dexterity. His conveniences are all well contriv'd and appointed; such as housing, ovens, and soft-water ponds,

' laid contiguous and properly situated, by
 ' which he saves considerably in labour. He has
 ' always a crop of clover with his flax; or sows
 ' it so early, that after pulling, he can have a
 ' crop of turnips. By long experience he knows
 ' the proper season for pulling his flax, that it
 ' be neither too late, nor too early; and like-
 ' wise the true method of watering is without
 ' rotting. His oven prevents the burning or
 ' discolouring the flax in drying, and gives it an
 ' evenly crispness, of great advantage in break-
 ' ing and swingling; and all this without any
 ' expence for fire. His engines and machines are
 ' of the best kinds; and kept in good order,
 ' and constant readiness. The goodness of his
 ' barns and granaries hinder vermin from de-
 ' stroying his seed, or flax. His ripplers get off
 ' all his seed, without disordering or turning his
 ' flax-heads and butts. His waggon rolls the
 ' seed all out; and his winnowing engine cleans
 ' it without any loss. The different size of his
 ' break, and shape of his scuthing-handle, toge-
 ' ther with his different method of using them,
 ' and his constant practice of bringing his flax
 ' warm and crisp from the oven to them, save
 ' him more than fifty per cent. And his soft-
 ' ning-mill takes off all harshness from the ripe
 ' flax, without breaking even the smallest fibre;
 ' by which means he hath less tow, and the

WEEKLY OBSERVATIONS. 181

length of the flax, which is its chief perfection, is preserved. Besides, this method gives the flax an equal softness and fineness, which saves the spinner a good deal of trouble, occasions the thread to take the twist readily, frees it of the fuzzy rough substance which appears on our thread made of beetled flax, and makes the linen whiten evenly, without stripes or rows, which frequently appear in uneven gristed linen, or that which is composed of harsh and unequal threads. This defect, entirely occasioned by the want of these mills, hath been the principal cause that our fine linens have never been esteemed at the English markets; and hath led us into a mistaken notion that coarse linens are the most profitable branch of the manufacture; which the practice of all countries, best acquainted with this trade, and our paying the fine manufacturer here higher wages, demonstrate to be an error.

Again, the foreign flax-dresser performs all his heckling work by girls and women; whereas our hecklers are generally chosen from among the strongest of our men. Thus, besides the loss of so much strength to the public, here is an additional expence laid on the manufacture, and the operation is performed to very great disadvantage. For as heckling is a very nice and delicate work, and requires great gentle-

‘ nefs of hand, a weak girl, who begins early at
 ‘ this work, ſhall at fifteen years of age heckle as
 ‘ much as a ſtrong young fellow, who begins at
 ‘ ſixteen or eighteen years old, and that to 20
 ‘ per cent. more advantage, in regard the ſtrong
 ‘ fellows generally tear and deſtroy as much as
 ‘ they dreſs.

‘ In a word, to this ignorance and want of
 ‘ practice in our people we may impute moſt of
 ‘ the inconveniencies our linen manufacture la-
 ‘ bours under, ſuch as the entire loſs of our flax-
 ‘ ſeed, the rotting and ſpoiling the flax in mak-
 ‘ ing, rating and watering, and the diſcolouring
 ‘ and burning it, and ſometimes their houſes a-
 ‘ long with it in drying, beſides the unavoidable
 ‘ expence of firing: and, at the ſame time, our
 ‘ want of the neceſſary machines, houſing, ovens,
 ‘ mills, ponds, and other conveniencies, puts us
 ‘ to infinite labour and expence; is an interrup-
 ‘ tion to other branches of the buſineſs; and
 ‘ raiſes the price of flax ſo high upon us, that
 ‘ Holland, under many diſadvantages, and parti-
 ‘ cularly the price of labour there being four
 ‘ times as high as with us, is yet able to pay the
 ‘ carriage, and ſell us conſiderable quantities of
 ‘ flax cheaper than we have hitherto been able
 ‘ to ſupply ourſelves with.

‘ To convince gentlemen of the importance
 ‘ and advantages of dividing our linen manuſac-

'ture into distinct branches, let us consider the
 'arguments of the ingenious Sir William Petty
 'on this very subject, a gentleman who had a
 'thorough knowledge of the oeconomy of ma-
 'nufactures. I shall make use of his own words,
 'as quoted in the Spectator,' Vol. III. N^o 232.
 "It is certain that a single watch could not be
 "made so cheap in proportion by one only man
 "as a hundred watches by a hundred; for as
 "there is a vast variety in the work, no one per-
 "son could equally suit himself to all the parts
 "of it; the manufacture would be tedious, and
 "at last but clumsily perform'd: but if an hun-
 "dred watches were to be made by an hundred
 "men, the cases might be assigned to one, the
 "dials to another, the wheels to another, the
 "springs to another, and every part to a pro-
 "per artist: as there would be no need of per-
 "plexing any one person with too much variety,
 "every one would be able to perform his single
 "part with greater skill and expedition; and
 "the hundred watches would be finished in one
 "fourth part of the time of the first one, and
 "every one of them at one fourth part of the
 "cost, though the wages of every man were e-
 "qual. The reduction of the price of the ma-
 "nufacture would increase the demand of it,
 "all the same hands would be still employed,
 "and as well paid. The same rule will hold in

“cloathing, shipping, and all other trades whatsoever: and thus an addition of hands to our manufactures will only reduce the price of them; the labourer will still have as much wages, and will consequently be enabled to purchase more conveniencies of life; so that every interest in the nation would receive a benefit from the increase of our working people.”

M.

N^O XXX. *Tuesday, November 1st, 1737.*

TO fulfil our promise, we shall now enter upon the business of flax-dressing. Our last paper, if the success of it has any way answer'd our intention, must have excited earnest wishes in all considerate and thinking readers, that a different management from what has hitherto prevail'd were introduc'd among us, and that important branch of the linen manufacture carried on, under better regulations—What directions we have been able to procure should not therefore be delay'd, and accordingly 'tis the SOCIETY'S design to postpone every other consideration, till this subject has receiv'd all the light that they can throw upon it.

The practice of the Dutch, who unhappily are our rivals in this important manufacture, at the same time that they must be our teachers, is

WEEKLY OBSERVATIONS. 185

undoubtedly the safest guide, where good information can be had. The difficulty lies in procuring that which may with safety be depended on, and this difficulty is considerably greater than can be well imagin'd. The Dutch are jealous of their secrets, and by penalties, and other cautions, guard against discoveries, in those branches of their trade, especially, where they know we are most deficient. Few are allowed to examine the peculiarities of their management closely, and at leisure, and those least, undoubtedly, who are suspected to have other motives, besides curiosity, in their enquiries. Merchants and manufacturers of other countries they particularly set a watch upon; conceal their machines with care from their inspection, and much more the method of working and applying them to use. 'Tis not therefore every thing, which has been represented as their practice, that we can prudently admit into our own. The relations of artificers, which otherwise would preferably deserve our notice, are on the contrary to be receiv'd with more than ordinary diffidence and caution. 'Tis natural to imagine they saw little, under restraints, discouragements, and real dangers; and what little they could see, few among them would have courage minutely to examine. A gentleman who is supposed to be inquisitive only to amuse himself in

186 THE DUBLIN SOCIETY'S

a strange country is less liable to suspicion, and has therefore a better chance of bringing home valuable discoveries: his opportunities are better, and his danger less; and from such hands especially we must expect whatever knowledge we shall acquire hereafter.

The Letters already published upon the culture of Flax and Flax-seed are a standing proof of what has been here asserted. They contained a system of Flax-husbandry almost entirely new, notwithstanding the most prudent methods had been taken, and long pursued at a considerable expence, to procure information from abroad. The case appears to us the same in those which are now to follow on Flax-dressing. Notwithstanding the enquiries which had hitherto been made, it will be plain, from the perusal of them, that we were greatly in the dark in several parts of that important business: and that we should still be so, had not the author of them made use of the advantages of his character and station to insinuate himself into the secrets of the Dutch, and search for them in that obscurity wherein they were industriously conceal'd. These letters come from the same gentleman with those already mentioned, and, if we do not very much mistake, his observations in them are as much out of the common road, as peculiar to himself, and as likely to be useful to his country.

GENTLEMEN,

‘ **I** would be ingratitude to conceal the pleasure I have receiv’d from your approbation of my Letters. I am, indeed, sensible it was bestow’d in a great measure upon my good intentions, and that the better part of the merit I can claim consists in the readiness I have express’d to do service to my country—However, as you have led me into an opinion that the observations I collected when abroad, may be of real use—And I must lay the blame upon the repeated encouragement you gave me if I conceive too highly of myself—I send you the remainder of them with more confidence and better hopes.

‘ They relate to the business of Flax-dressing, which I always thought should be a separate trade, carried on by persons who made that alone their livelihood, and by constant and assiduous attendance endeavoured to attain that dexterity and readiness which is every where observable in Holland, but hardly any where to be met with in this country. I am glad to find that I have your authority to support me in this opinion, and I hope what you have lately published to that purpose will meet with the regard it certainly deserves.

‘ Before I go upon particulars, I beg leave to

' observe, that the business of the flax-dresser in
 ' Holland begins considerably before the place I
 ' assign him in these papers. 'Tis there the rule,
 ' that the husbandman concerns himself no far-
 ' ther with his crop when it is sown. The flax-
 ' dresser buys it standing, weeds, pulls and saves
 ' it his own way, and at his own expence. This
 ' custom, I imagine, it would be difficult to in-
 ' troduce among our people, and as I don't per-
 ' ceive a strict necessity of conforming to their
 ' practice in this point, tho' some advantages un-
 ' doubtedly attend it, I chuse to hint it only,
 ' and leave the whole to the discretion of the
 ' reader, with this cursory observation to direct
 ' him; That the farmer, who makes his flax,
 ' must provide conveniencies at home to receive
 ' it from the field; whereas, in the Dutch me-
 ' thod, he is no ways encumber'd with it, but
 ' discharg'd at once from all care and concern
 ' about it: this to him is a considerable saving,
 ' and can be no hardship on the flax-dresser,
 ' who in either way, to carry on his business to
 ' purpose, must provide himself with proper
 ' housing, and have room sufficient to dispose
 ' of it.

' But not to dwell any longer on this head
 ' where I see but little hopes of prevailing with
 ' the farmer—I shall proceed upon a supposition
 ' that he has sav'd his flax in the manner direc-

'ted in my former letters, and then sold it to
 'the dresser—The first business of the flax-
 'dresser is, in this case, rippling or taking off
 'the boles. This is done with an instrument in
 'common use, and too well known to need de-
 'scription. In Holland two men work at the
 'same ripple, which is fix'd on the middle of a
 'bench, while they sit one at either end, oppo-
 'site to each other: there they take stroke a-
 'bout, and draw their flax alternately thro' the
 'ripple, till it is clear'd of all the boles. They
 'are attended by two boys, or women, who
 'serve them with unrippled flax, and tye that up
 'in bundles which has gone thro' this operati-
 'on, and by this regular disposal of their hands
 'the whole is carried on with great dispatch.
 'Tis worth observing that the rippers take but
 'moderate handfuls at a time, and by that cau-
 'tion, which is not always sufficiently observ'd
 'among us, do their work more readily, and
 'with greater safety to the flax, which, in large
 'bundles, is managed with less ease, and often
 'broken on the ripple. The women also, when
 'they tye the rippled flax in bundles, are care-
 'ful not to bind it close; an error in that point
 'is of more consequence than can be readily
 'imagined; the watering never succeeds tho-
 'roughly where the bundles are hard tied, and
 'the fermentation is unequal in the several

' parts, as they are more or less confined.

' These are useful cautions, and deserve proper notice: but there is another of vastly more importance, and which alone affords sufficient reason to appropriate this business to the dresser, and take it entirely from the farmer.

' 'Tis not to be expected, at least till the common people of this country learn more diligence and industry, that the farmer should be as attentive as the dresser to part and sort his flax; provided he gets his seed well off, and can fit his flax for sale, his concern with it is at an end, and his care extends no further; and yet it is of great moment to the manufacture that the flax be well sorted in the rippling. If the coarse and fine, the ripe and unripe, are mix'd promiscuously with one another, the whole will be greatly injur'd in the water. One part will still be harsh while the other is almost rotten; and the yarn, by a necessary consequence, be damag'd in a great degree. In Holland they bestow peculiar care upon this sorting, and the women who attend the ripplers have it especially in charge. They are sensible that unripe flax ferments with greater ease, and in a shorter time, than that which has stood to ripen; and that therefore if they are ty'd up together to be watered, one or other must certainly be spoiled. The case

WEEKLY OBSERVATIONS. 191

‘ is in some degree the same between the coarse
‘ and fine, which require the water more or
‘ less, according to their staple.’

I am, &c.

R. M.

N^o XXXI. *Tuesday, November 8, 1737.*

IT would be needless to detain the reader by
introductions, and prefatory discourses:
the letters upon flax-dressing will recommend
themselves, and the author has left us nothing
more to do, than to communicate them to the
public, in the same dress which he has given
them.

GENTLEMEN,

‘ **W**Hen the flax is rippled, the dresser’s next
‘ care must be to water it, and if his
‘ ponds will contain the whole, it will be best to
‘ throw in all his stock directly from the bench.
‘ ’Tis of considerable importance, in all business
‘ to set about it seasonably, but it is particular-
‘ ly so in this.—When the summer heat de-
‘ clines, the least delay is dangerous: the water
‘ loseth something daily of its warmth, and the
‘ fermentation of the flax by a necessary conse-
‘ quence, becomes proportionably difficult and

‘ tedious.—Besides the season for laying down
 ‘ the flax to bleach, or for grassing it, as it is
 ‘ usually call’d, wastes in the mean time, and the
 ‘ approach of winter should make the dresser
 ‘ expeditious. The neglect of a few days may
 ‘ throw him back as many months, and if he
 ‘ mispends the autumn, his opportunity is lost
 ‘ till spring.

‘ However, as it is frequently the case, that
 ‘ his stock is too large for his reservoirs, the
 ‘ Dutch dresser, when that happens, houses
 ‘ carefully whatever he can’t dispose of in his
 ‘ pond.—I observ’d in my former letters, that
 ‘ stacking is a practice perfectly unknown in
 ‘ Holland, and I beg leave to repeat it here,
 ‘ that rippled or unrippled, the dressers of that
 ‘ country never stack their flax. — What flax
 ‘ they cannot immediately water from the rip-
 ‘ ple, they save in stanch convenient barns, as
 ‘ they do the seed in granaries, and leave no part
 ‘ of that valuable crop expos’d to the injuries
 ‘ of the air and weather.

‘ The arguments in favour of their methods,
 ‘ are to every capacity so obvious, that I might
 ‘ very well excuse myself from laying them be-
 ‘ fore my readers.—However I can’t forbear in-
 ‘ serting them in the same plain way, in which
 ‘ they were convey’d to me by a blunt boor, to
 ‘ whom I apply’d for information.

WEEKLY OBSERVATIONS. 193

‘ The fellow, it seems, did not think my question worth an answer, when I ask’d him, whether stacking would not serve all the purposes of housing, which was inevitably attended with considerable expence? He said nothing but led me to his hay-rick, and taking out a handful, desir’d me to observe how the outside was damag’d; how rotten and consequently how weak and brittle the weather-beaten hay: then ask’d me in his turn, if this were flax, what kind of cloth would you expect from it?—The analogy undoubtedly will hold, and I own, the peasant’s reasoning so thoroughly convinc’d me, that, ever since, I have look’d upon our practice as a destructive one, and accordingly have endeavour’d to explode it.

‘ There is indeed a difference between hay and flax; as the latter is much stronger, it does not rot entirely and go to powder between your fingers like the other.—It will even stand the dressing, notwithstanding the injury it has receiv’d. But this aggravates the evil, instead of alleviating it.—If the flax were so far damag’d, as not to bear the dressing, something would indeed be lost in the quantity, and considerably more in the length, and consequently in the value of it; but however, when that was over, the manufacture could

' receive no further damage : whereas now it is
 ' spun into our yarn, and wove into our cloths,
 ' which are therefore of unequal strength, in
 ' different parts, and must break into holes,
 ' whenever the weaker rotten threads meet with
 ' any stress, either in the bleaching or the wear-
 ' ing.

' I hope, gentlemen, you will forgive me this
 ' digression. I was led into it by the great im-
 ' portance of the subject. Housing is so neces-
 ' sary, and at the same time so much neglected,
 ' that I could not wave this opportunity of re-
 ' commending it a second time to the serious
 ' consideration of the readers.—I shall now re-
 ' turn to the immediate business of this letter,
 ' and proceed to give directions to the flax-dres-
 ' ser, how to water his flax in the best manner.

' Our general negligence in an article of so
 ' much moment, makes it necessary to recom-
 ' mend the choice of proper water in the first
 ' place. Two parts in three of those who deal in
 ' flax among us, lay it down in bog-holes, or
 ' in rivers, and seem to think that every kind of
 ' water is equally good with any other ; but
 ' this is certainly a considerable mistake, and
 ' has, I am afraid, done more injury to the li-
 ' nens of this kingdom, than our people are a-
 ' ware of. Bog-water gives the flax a tawney
 ' colour, and from the peculiar cast of too ma-

'ny of our cloths, we have reason to be satis-
 'fied, they retain something of the dusky hue,
 'which the flax received in watering. Notwith-
 'standing the best endeavours of our bleachers,
 'our linens are in colour greatly inferior to the
 'Dutch, and I know no more likely cause to be
 'assign'd for it, than the black muddy tincture
 'most of our flax imbibes in bog-holes. Those
 'who lay their flax in rivers are safe, indeed,
 'against this evil; but are liable, on the other
 'hand, to several inconveniencies very well
 'worth avoiding. A strong current disorders
 'and entangles it, and entails thereby an addi-
 'tional labour on the dresser, who, besides his
 'pains, runs a considerable hazard of breaking
 'and damaging his flax in setting it to rights
 'again;—add to this, that could the former be
 'avoided, an inconveniency however, always
 'certainly attends the use of flowing water. It
 'answers the end less speedily, and procures at
 'best a slow and tedious fermentation.

'By these observations on our management,
 'the reader will perceive, that a proper choice of
 'water, consists chiefly in seeking those qualities
 'together, which we have hitherto imprudently
 'divided. One set among us have chosen stand-
 'ing waters, without attending to their clear-
 'ness; the other, attentive only to that point,
 'have made use of running waters to avoid the

' foulness of the other. — Each have neglected
 ' one main quality, and accordingly succeeded
 ' but in part. Those indeed the best who have
 ' used the clearest water ; but none well, be-
 ' cause they did not use together the clearest
 ' and stillest. There is indeed, a third quality in
 ' water requisite to the purposes of flax-dressing,
 ' but as our people are pretty well aware of it, I
 ' need do no more than name it, and may con-
 ' clude this letter by this general instruction,
 ' that the clearest, stillest, softest water is the
 ' best.'

I am, &c.

R. M.

N^o XXXII. *Tuesday, November 15, 1737.*

GENTLEMEN,

' 'TIS the natural consequence of the ob-
 ' servations in my last, that a convenient
 ' situation is nearly of the same importance to
 ' the flax-dresser, as it is universally allow'd to
 ' be to the bleacher. Our dressers, if any there
 ' be among us who deserve the name, do not
 ' seem indeed to be aware of this, and while they
 ' undertake only small quantities of flax, and
 ' allow themselves the indiscriminate use of any
 ' kind of water, 'tis no wonder they should not :
 ' but whenever they enlarge their business, grow

WEEKLY OBSERVATIONS. 197

‘ nice and curious in their management, and
 ‘ commence flax-dressers in good earnest, they
 ‘ will find the command of water immediately
 ‘ requisite to their success. ’Tis as material a
 ‘ circumstance, as any other, as even the choice
 ‘ of proper water, that there be a sufficient sup-
 ‘ ply of it at hand: otherwise the charge of car-
 ‘ riage to and from a distant place, must be laid
 ‘ upon the dressing, and enhance the price of it
 ‘ considerably.

‘ Give me leave to observe, as I go on, that
 ‘ the necessity of having settled flax-dressers, re-
 ‘ sident in convenient habitations, and dispos’d
 ‘ about the country, is from this alone indis-
 ‘ putably made out; our itinerant undertakers
 ‘ in this kind, must take the water as they find
 ‘ it, good or bad, distant or at hand, as the
 ‘ place, where they are employ’d, affords it;
 ‘ and, if there be any weight in what I have of-
 ‘ fer’d in these letters, let their skill, other-
 ‘ wise, be what it will, this single circumstance
 ‘ must defeat their best endeavours.

‘ It may perhaps be difficult readily to engage
 ‘ our people in a method so widely different from
 ‘ their own—But I would willingly persuade my
 ‘ self, that it is however not impossible. Could
 ‘ I see but one good flax-dresser fix’d in a pro-
 ‘ per habitation, and provided with all conveni-
 ‘ encies at the public charge, I should hardly

198 THE DUBLIN SOCIETY'S

entertain a doubt of convincing the most obstinate. The success which must infallibly attend him, would be an argument to all capacities alike, and give irresistible encouragement to this branch of the linen manufacture. The proper end of all encouragements, is to remove the doubts and fears which throw a damp on every new attempt, and to engage the timorous to venture an experiment; and surely nothing could answer that purpose more effectually, than a standing instance of success always before their eyes. It has been frequently propos'd as a scheme likely to succeed, to bring over flax-dressers to instruct and direct our people,—but without they are dispos'd of in proper and convenient settlements, I must think the scheme deficient, and, to speak out sincerely, of very little use. The same objections which now lie against our rambling flax-dressers, will equally affect the other. They will do their business as clumsily when they are destitute of their conveniences: or should they exceed a little in dexterity and neatness the dressers among ourselves; yet a full and sufficient instance of regular and masterly flax-dressing they cannot possibly afford us. To the perfect execution of this art, there are so many things required, as can no where else be had but in a well cho-

WEEKLY OBSERVATIONS. 199

‘ sen settlement, and to what height it may
‘ be carried, we shall never know, till we set
‘ about it in that way.

‘ I beg leave to observe besides, and as an ad-
‘ ditional argument to support what I have of-
‘ fer’d—That without an instance of the real
‘ advantages of good and regular flax-dressing,
‘ our people will scarce be persuaded to attempt
‘ it.—Whereas if a single flax-dresser had en-
‘ rich’d himself by that one business, thousands
‘ would immediately fall into it. Instructions
‘ and directions can only then take place, when
‘ due care has been bestow’d, that some there
‘ should be desirous to make use of them; and
‘ therefore the best endeavours to inform our
‘ people, will probably avail but little, till they
‘ have palpable experimental proof that it is
‘ their advantage to be taught.

‘ You may think this hint a little out of
‘ place, but if you consider it as I do, you’ll
‘ easily forgive me. It will, methinks, should it
‘ ever be laid hold of, effectually promote flax-
‘ dressing, and, in the readiest manner, intro-
‘ duce that valuable art, so greatly wanted, and
‘ so little understood.

‘ To return—The most eligible situation for
‘ the flax-dresser, is in the neighbourhood of
‘ a large lough, or a still river, and there in
‘ the most convenient spot for laying out his

' ponds and reservoirs; for however strange it
 ' may appear to us, who unhappily are us'd to
 ' a slovenly negligence in this point. The dres-
 ' ser who would perfectly succeed must have
 ' ponds in every situation. 'Tis true, large
 ' basons of standing water, and slow currents
 ' are naturally good for flax, and may be us'd
 ' with tolerable safety: but they are still capable
 ' of improvement, as no current is certainly
 ' better than a slow one, and a small pond less li-
 ' able to disturbance from winds and waves than
 ' a large lake. 'Tis probable our people will ob-
 ' ject that it cannot possibly quit cost, to pro-
 ' vide against the accidental inconveniencies of a
 ' sudden storm, or the small loss of time which
 ' attends watering in a current, at so considera-
 ' ble an expence.—But I beg leave to refer them
 ' to the Dutch, who by long experience are con-
 ' vinc'd, that the best conveniencies are always
 ' cheapest, and proceed accordingly in this, and
 ' in every other case. I should not indeed de-
 ' spair assigning good reasons for their practice,
 ' if this were a proper place to indulge philoso-
 ' phical speculations. 'Tis certain the longer the
 ' water settles, the softer it always proves, and
 ' the more kindly it ferments with the sapona-
 ' ceous juice of plants; and it might be easily
 ' made out that the slowest currents, and even
 ' standing waters expos'd to the action of the

WEEKLY OBSERVATIONS. 201

‘wind want some assistance to make them as soft as could be wish’d; but as in the course of all these letters, I have built only upon precedents, I am willing to let this point, as well as others, rest upon that foundation.

‘To proceed—As a situation favourable in every circumstance cannot always be obtain’d; the flax-dresser may sit down with safety in any place, where there is command of water, and room for reservoirs, tho’ the water should not prove of the best and softest kind. Springs excepted, which obstinately retain their harshness. Any stream, sufficient to supply him, may with proper care be made serviceable to his purpose. Admitting it into his ponds sometimes, and allowing it a longer season, to deposite gross, hard and stony particles, and receive the influence of sun and air, will make indifferent water equal to the best. Where he has capacious ponds, ’tis the dresser’s fault if he has not good water, and, without entering into the reasons of the thing, ’tis indisputably certain from experience, that heat and rest, which he may bestow upon it by filling his reservoirs early in the summer, will take off all that hardness, which may hurt him.—Indeed different kinds of water will require different times for settling, some more, and others less, but this will be soon determin’d,

‘and demands no particular direction. The
 ‘main point is to have reservoirs sufficient for
 ‘this purpose; whoever has them may always
 ‘procure good water, and without them nothing
 ‘but a scarce and lucky situation can afford suc-
 ‘cess, and even that but imperfectly after all.

I am, &c.

R. M.

N^o XXXIII. *Tuesday, November the 22d,*
 1737.

GENTLEMEN,

‘IN the several particulars mention’d in my
 ‘former letters, I had inveterate prejudices,
 ‘and the weight of antient custom against me.
 ‘They were directions to our people entirely
 ‘new, and for that very reason hard to inculcate
 ‘—That the dresser should have a settled habi-
 ‘tation—Avoid bog-holes and rivers, the only
 ‘conveniencies almost we are acquainted with
 ‘for watering—Provide himself with ponds
 ‘and reservoirs, and stranger still, with stanch
 ‘and capacious barns to house his undress’d
 ‘flax—I therefore hope to be excus’d for en-
 ‘larging on those assertions. I was very sen-
 ‘sible they would appear extraordinary to most
 ‘among us, and require all the assistance I
 ‘could give them, to make their way against

WEEKLY OBSERVATIONS. 203

'received opinions. What I am at present to
'proceed upon, is of a different nature, and
'accordingly this letter will consist of little
'more than plain instructions, delivered in as
'plain a manner.

'When the flax is laid in water, it must
'be cover'd with a weight to keep it down.
'Clay, rushes, fern or timber, answer this pur-
'pose equally—and indeed any thing will do
'tolerably well, sharp stones excepted, which
'are apt to cut the flax. However, if the Dutch
'are to be believed—there is even in this a
'choice; and tho' it seems in speculation per-
'fectly indifferent what your flax is cover'd
'with, experience, they will tell you, has de-
'termin'd it is otherwise in fact. They use the
'slutch or mire at the bottom of their ponds,
'which is scarce any thing besides the dirt of the
'flax itself, which in those standing waters,
'forms in time a black and heavy sediment.
'This they imagine gives the flax that light
'grey tincture, which is perhaps less pleasing
'to an unskilful eye, but takes the bleach more
'kindly, and brightens better in the cloth, than
'the white or yellow cast of ours. Whether
'they are right in their opinion, a few trials will
'inform us: certain it is that their flax is of a
'different hue, and takes a better colour in the
'bleaching green, than the greater part of

'ours: and should this peculiar kind of time
'contribute in any measure towards it, an ad-
'ditional motive must arise from thence, to use
'ponds and reservoirs, where alone it can be
'had.

'Tis impossible exactly to determine how
'long the flax should lie in water. The fer-
'mentation necessary to free the harle from
'the bunn is over in a longer or a shorter time,
'according to the quality of both flax and wa-
'ter. Sometimes where the water is exceeding
'soft, the weather warm, and the flax easy to
'be wrought upon, three or four days will be
'sufficient: In different circumstances, the fer-
'mentation lingers a week, ten days, and, as I
'am inform'd, in some cases, sixteen or eighteen
'days. There can be therefore no general di-
'rections on this head.—But the dresser who
'knows his flax and water, and has made pro-
'per observations on the different effects of
'different weather, cannot be greatly at a loss.

'However, it will be an useful precaution in
'the dresser, to make repeated trials of his flax
'after it has lain three days.—If the bunn parts
'freely from the harle, and the flax dresses
'kindly after drying, it should be drawn imme-
'diately; it has receiv'd all the benefit of wa-
'tering, and is impair'd considerably every hour
'it sleeps, when that is over. I shall add, that

'it is not to be expected that flax should
 'have lost all harshness, when it comes directly
 'from the water.—The dresser who waits for
 'that, will have weak and half-rotten flax—
 'An allowance must be made for grassing, which
 'takes off something of the stubbornness the
 'very best flax retains if it be not over-water'd.
 '—Our people have the more occasion for an
 'admonition of this kind, because among us,
 'it is a common error to let flax waste itself
 'by fermentation.—And we are so fond of soft-
 'ness, that for its sake, in this and every other
 'article of management, we give up strength
 'and soundness, qualities incomparably more
 'valuable. The Dutch are on the contrary sol-
 'licitous in the first place for strength, and will
 'run every other hazard sooner than that of
 'weakening the harle.—and indeed the dispa-
 'rity is obvious.—If your harle is damag'd, or
 'to speak more properly, half-rotten, there is
 'no remedy in after-management.—Whereas
 'by the help of longer grassing and afterwards
 'of the softening engines, too much harshness
 'may in a great measure be remov'd. The skill-
 'ful dresser's business is indeed to avoid both,
 'and if he tries a sheaf of his flax daily, as di-
 'rected in the beginning of this paragraph, he
 'cannot err considerably. But till by long ex-
 'perience he is secur'd against mistakes, 'tis his

'best way however, to lean to the safer side,
'and draw his flax too early, rather than too
'late.

'When the watering is over—grassing fol-
'lows immediately upon it. This is nothing
'more than spreading out the flax upon dry
'ground, cover'd with short grass, there to lie
'till it is dried, bleach'd, and softned sufficient-
'ly for use. The shorter the grass, the better
'for this purpose. If it be of any length it re-
'tains too much moisture, after rains and dews
'occasions a second fermentation in the flax,
'retards the drying of it, and frequently rots
'the harle. And indeed tho' the operation takes
'its name from thence, 'tis not a necessary cir-
'cumstance that the flax be laid on grass—Dry
'banks of sand, or stony gravel free from clay
'are perhaps fittest for this use. Tho' lands un-
'der short grass are generally recommended by
'flax-dressers, 'tis chiefly in opposition to plowed
'grounds, where the flax would be sullied and
'discoloured. Any dry exposure free from dirt,
'maybe us'd with safety, and among those the
'warmest are the best.

'There are but few directions to be given on
'this head, the most material are—that the flax
'be turned frequently every second day or oft-
'ner.—That due care be had of grassing it be-
'yond the proper time, which is almost as per-

WEEKLY OBSERVATIONS. 207

nicious as watering it too much, and that for the same reasons—and that when it is taken up it be regularly sorted, and the several kinds, separately tied up in sheaves.—The two first of these particulars require no manner of enlargement, since the practice of turning flax universally prevails, and every body knows that the usual time for grassing is from a fortnight to three weeks, according to the weather, and the goodness of the flax.—On the third particular a few words may be necessary, because sorting is but little understood among us.—I shall therefore conclude, by observing to your readers, that when the Dutch tie up their flax, which they generally do in sheaves as large as those of corn, they take peculiar care, that the flax in every sheaf be of the same length, fineness, strength, and softness.---By this caution the several staples are kept asunder and distinct, ready to be applied, each to its proper use, to the great ease and advantage of the manufacturers, who according to their different wants, may be immediately supplied with every kind.

I am, &c.

R. M.

N^o XXXIV. *Tuesday, Nov. 29, 1737.*

GENTLEMEN,

' **T**Here is not any article in flax-dressing,
 ' of more importance to the linen ma-
 ' nufacture, than the one I am at present to con-
 ' sider. The success of every subsequent operati-
 ' on on the flax, depends almost entirely on good
 ' drying; and notwithstanding the utmost care
 ' in rippling, watering and grassing, an error
 ' here may disappoint, at last, the dresser's most
 ' valuable hopes. 'Tis therefore a matter of sur-
 ' prize, so little thought has been hitherto be-
 ' stow'd upon this subject, that no method of
 ' drying flax with safety, has been introduc'd a-
 ' mong us. The common way of laying it on
 ' hurdles, and lighting a fire under them, is at
 ' first sight subject to so many inconveniences,
 ' that how it should at all be dream'd of, much
 ' more, how it should meet with so favourable
 ' a reception, as to continue to this day, the
 ' prevailing practice of the country, is to me
 ' perfectly inconceivable.—That the smoke in
 ' its passage thro' the flax, must infallibly dis-
 ' colour it.—That several sheaves piled upon
 ' one another, and, from the situation of the
 ' fire, plac'd at different distances from its acti-
 ' on, dry unequally.—That therefore of the

same parcel, one sheaf must be almost burnt, and another not crisp enough for use.—That in the self same sheaf, a heat convey'd principally by smoak, acts considerably slower on the center, than upon the external parts, —and by a necessary consequence, that these must be entirely parch'd; before the other is even tolerably dry.— These methinks were obvious truths, and which it could have been no difficult matter to foresee. Add to them, the danger of firing the whole pile, which by sad experience we are taught, is no imaginary one.—Allow for many smaller inconveniencies, which will be better apprehended, from the sequel of this letter; and I fancy you will join with me in opinion, that among the many errors we are guilty of, 'tis hardly possible to find a more extraordinary instance of bad management.

'Had the remedy been far removed from common observation, it would be some apology. But to overlook a conveniency for drying of daily use in other cases, and which alone could answer all the dresser's purposes together, is unaccountable negligence indeed, and I cannot help blushing for my countrymen, that it should still be necessary to recommend an oven to them.

'The main advantages of this conveniency

' above all others present themselves so readily,
 ' that it would be needless to enlarge upon
 ' them: it dries cleanly, equally and quickly, at
 ' a small expence and safely, and is liable to no
 ' objection: But some advantages there are, no
 ' ways inconsiderable tho' of an inferior kind,
 ' which it will be proper to take notice of.
 ' These arise chiefly from the peculiar manner
 ' of disposing the oven and using it, and will be
 ' best explain'd in a particular description of
 ' the Dutch dresser's management.

' I have observ'd in former letters, that who-
 ' ever undertakes flax-dressing in that country,
 ' provides himself with proper housings. By that
 ' name, besides his barns and granaries, you
 ' must understand a working-house, where he
 ' breaks his flax and scutches it. The usual di-
 ' mensions of this place, are in the clear thirty
 ' feet by fourteen, sometimes larger where great
 ' business is carried on, but seldom, if ever, less.
 ' Care is taken that the whole be well lighted,
 ' and conveniently laid out to receive the
 ' breaks, and at the time leave room for scutch-
 ' ing. In this house, and at one end of it, the
 ' dresser builds his oven within a large capacious
 ' chimney, to prevent all danger of firing the
 ' place.—This situation saves him labour, his
 ' flax when dried, is ready and at hand, and he
 ' conveys it to the break without expence; and

WEEKLY OBSERVATIONS. 211

' this I mention as the first of those advantages,
' which may be obtain'd by a little skill and
' good oeconomy.

' He secures a second, and more considerable
' one, by proportioning exactly the size and
' capacity of his oven, to the dimensions of his
' work-house. When the flax is warm and crisp
' it works with greater ease, and consequently,
' at lower rates, and, in other respects also, to
' more advantage. As it cools, and gives, it
' again grows tough, requires more stress and
' time under the break, cuts frequently by the
' violence which then becomes necessary in the
' stroak, runs more to tow of course, is charg'd
' with a higher price for labour, and is consider-
' ably worse. Hence the dresser takes peculiar
' care to bring his flax in full crispness to break,
' and builds his oven so, that in one day he may
' work off what it has dried in the foregoing
' night. By this means the bunn is always brittle,
' flies off with few light stroaks, and leaves the
' harle sound and in perfect strength.

' At their rate of working, an oven of fifteen
' feet long, ten feet wide, and five feet high, will
' keep as many hands employ'd one day, as can
' be conveniently dispos'd of in the work-house
' above-mention'd. And I believe our people
' will imagine, that they have upon those terms,
' an heavy task to go through. In our slovenly

‘ way of doing business, half the quantity
 ‘ would be too much for twice the hands: so
 ‘ great are the advantages of skill and proper
 ‘ management!

‘ It will be necessary to observe that the
 ‘ Dutch, as an improvement upon the former
 ‘ caution, never draw two sheaves together.
 ‘ They take them singly from the oven, as they
 ‘ want them, and give them all the benefit of
 ‘ what little heat remains as long as they can
 ‘ spare them from the break.

‘ Before I proceed to other circumstances of
 ‘ their practice, since I have given the dimen-
 ‘ sions of the oven, it will be proper to finish the
 ‘ description of it. From the size of it, it must be
 ‘ stronger than the bakers, well roof’d, tho-
 ‘ roughly secur’d, and shut with a wooden door.
 ‘ The entrance may be in every oven equal—
 ‘ just large enough to admit a man with toler-
 ‘ able ease.

‘ To return — The next thing the Dutch
 ‘ provide for, is, to save the charge of firing.
 ‘ In the first heating of the oven there is no
 ‘ room for this, and proper fuel must be had;
 ‘ but when once they have begun to break and
 ‘ scutch, the dirt and straws, which are beat out
 ‘ of the flax in working, serve them ever after,
 ‘ without any additional expence; and each par-
 ‘ cel affords firing for the next, in a regular suc-

' cession, till the whole is dried. These little arts,
 ' and seemingly inconsiderable instances of good
 ' oeconomy give the Dutch so much advantage
 ' over us, that I must beg leave to remind your
 ' readers, that they deserve more of their atten-
 ' tion than perhaps they have hitherto bestow'd
 ' upon them. In business of this kind, where
 ' the profits are necessarily small, waste must be
 ' felt, be it ever so trifling in appearance; and
 ' accumulated, and continual waste must infal-
 ' libly end in ruin, though each particular taken
 ' singly and afunder, is perhaps too minute for
 ' observation.

' Of this kind, more especially than any
 ' other, is the waste of time and labour. Three
 ' or four minutes lost cannot well be charg'd in
 ' an account, much less the misapplication of
 ' a little strength; and yet multiply these mi-
 ' nutes into hours, or increase the waste of spi-
 ' rits ~~and~~ it becomes weariness and the plain
 ' palpable loss upon the whole, will give suffi-
 ' cient evidence how much was lost by parcels.

' The Dutch are aware of this more than any
 ' nation under heaven, and therefore lay out all
 ' their art in saving time and labour. In the case
 ' before us they kindle the fire in the oven early
 ' in the evening—some hours before the work
 ' is over. The sweepings of the flax are soon
 ' thrown in and lighted, and the oven heats and

‘cools again sufficiently before the breaks and
 ‘scutches are laid by: ’Tis ready to be fill’d,
 ‘when the business of that day is ended, and
 ‘when the next begins, ’tis again ready to be
 ‘drawn,—not a minute is lost in the whole
 ‘round, and the work proceeds in a regular suc-
 ‘cession no where interrupted,

‘I shall conclude by informing the flax-dres-
 ‘ser, that his oven is then of a proper heat,
 ‘when a man can stand in it without uneasiness.
 ‘This is the rule in Holland, and ’tis an advantage
 ‘peculiar to the oven, that the heat of it can be
 ‘thus exactly measured. Kilns or stoves cannot
 ‘with equal certainty be tried; their heat is va-
 ‘riable and unsteady, and, for that reason, dange-
 ‘rous and unfit for flax: which, to collect the
 ‘whole purport of this letter into one general
 ‘assertion, can no where else be dried so perfect-
 ‘ly as in an oven.’

I am, &c.

R. M.

N^o XXXV. *Tuesday, Dec. the 6th, 1737.*

GENTLEMEN,

‘I Observ’d in my last letter, that the quan-
 ‘tity of flax, which the Dutch dresser
 ‘breaks, and scutches in a day, is, in proportion
 ‘to the number of hands employ’d by him, con-
 ‘siderably larger, than that which we should

here expect to have wrought off in the same
 time—That this difference in the dispatch of
 business, ariseth chiefly from the crispness of
 the flax, when it is laid under the break; and
 therefore will subsist no longer than till our
 people are prevail'd upon to dry as they do,
 and use an oven. The narrow compass, with-
 in which I am confin'd, to suit my letters to
 the dimensions of your paper, allow'd of no
 enlargement; and this assertion, however it
 deserv'd it, I had not room particularly to
 explain, much less to support, by proper
 argument.

Give me leave therefore, to resume it, and,
 as it is of the greatest importance to the manu-
 facture, to improve upon it, by shewing more
 minutely in what proportion the Dutch ex-
 ceed us in dispatch.

A penny is the constant price paid in Hol-
 land to the undertaker, for breaking and
 scutching flax by wholesale,—something less
 therefore to the journeyman,—and yet 'tis
 common in the latter, to prefer payment by
 the pound, to the usual wages of the country
 twenty pence a day.—'Tis therefore evident,
 that the journeyman flax-dresser among them,
 breaks and scutches singly above twenty
 pounds of flax.

Our people on the contrary chuse to re-

'ceive their daily wages, which seldom exceed
 'nine pence, never ten, rather than be paid ac-
 'cording to the quantity wrought off, tho' five
 'farthings is the lowest price given any where
 'in Ireland by the pound. Our dresser, there-
 'fore upon the fairest calculation, breaks and
 'scutches but eight pounds of flax a day,
 'and the quantities of work perform'd by the
 'same hands, in the same time, are to one an-
 'other in the amazing disproportion of two and
 'a half to one.

'The facts are indisputable, and the conclu-
 'sion, how surprizing soever it may seem, fairly
 'and regularly drawn. Three parts in five of
 'the strength and labour of our dressers are
 'plainly misapplied, and for want of good con-
 'veniencies to facilitate their work, entirely
 'wasted.

'I believe, I need not call upon the readers to
 'observe that a manufacture carried on under
 'such pressures—disadvantages is an expression
 'of too weak a meaning—can never flourish; 'tis
 'rather a wonder it should live, and support it
 'self, tho' faintly, against the weight and rival-
 'ship of a people equally remarkable for oeco-
 'nomy and industry.—However, to do common
 'justice to the argument, indulge me for a mo-
 'ment longer, and give me leave to set it in ano-
 'ther light.

WEEKLY OBSERVATIONS. 217

Our labourer can afford to work for ten pence, and provided he receive daily that small pittance, can maintain himself and family with ease.—The Hollander to the same purposes wants twice that sum, and therefore must earn his two pence for the other's penny. At present he does more than this,—good conveniences, and superior skill in the ready use of them, enable him to underwork us considerably beyond that proportion.—But suppose our dressers equally well provided, give them the same dexterity,—and that a few years experience will bestow,—the tables immediately are turn'd. Our flax must come cheaper from the break and scutchers by one half, and they, instead of us, be reduc'd to streights and shifts to support a decaying manufacture.

Could our journeymen hereafter, as theirs actually do, work off twenty pounds of flax a day, they might afford their labour for a half-penny per pound; three parts in five of the present price would be taken off without prejudice to them, and by proportionable improvement in other branches of the manufacture, our cloths would come cheaper to the market, than from any other country under heaven. According to the usual computation that three quarters of the current price of linens is the purchase of labour only; our manufactur-

'ers, who live comfortably at home upon half
 'the wages paid in Holland, can with equal in-
 'dustry and skill, underwork the Dutch five
 'and thirty pounds in every hundred.—A de-
 'duction which whenever they are forc'd upon,
 'tis impossible they should carry on their
 'trade.

'I won't indeed pretend to vouch for the
 'exactness of that computation.—'Tis no easy
 'matter to strike a medium upon the several
 'staples, and determine what part of the whole
 'price should be charg'd on the materials ; and
 'how much remains, as the produce of mere la-
 'bour.—But certain I am, that in fine cloths, the
 'estimate is considerably too low : the proporti-
 'on between the worth of the materials in their
 'native state, and their value afterwards, when
 'manufactur'd and improv'd, is in linens of the
 'finest staple, as ten, twenty, or perhaps more
 'to one, and therefore there at least, the argu-
 'ment carries its full weight, and with a little
 'oeconomy and industry, we may undersell the
 'Dutch a great deal more than thirty five per
 'cent.

'To confirm this assertion—which I hope
 'may be of use to encourage the methods I pro-
 'pose for the future management of flax.--Give
 'me leave to observe further from my last,—
 'that it is not only by misapplying the strength

'and labour of our people, that we suffer in
 'the articles before us.—But besides, and that
 'considerably by the waste committed on the
 'flax, for want of thorough drying, and a pro-
 'per crispness. We are now oblig'd to use for-
 'cible and repeated strokes in breaking, or to
 'speak more properly to pound rather than
 'break the harle. This weakens and impairs it,
 'and besides deprives it of its proper length, one
 'of the most valuable qualities it has. In break-
 'ing the force is applied cross-wise, and athwart
 'the grain, and therefore where it is too great,
 'or too long continued, bruiseeth and cuts the
 'fibres; which afterwards in going thro' the
 'heckles, snap where they are weakest, and of
 'course fall into tow. 'Tis impossible to ascer-
 'tain this damage, but at a guess, I should
 'imagine that by this unhappy, tho' necessary
 'effect of bad drying, we may heckle off from
 'the same flax, one part in four more tow, than
 'the dresser does in Holland. — If so, our loss
 'under this head is considerably enhanc'd.—Or
 'to set the same assertion in a more comfortable
 'light, 'tis upon this supposition in our power,
 'by a little charge to lower our present prices,
 'without any diminution to the owner's pro-
 'fit, by encreasing the quantity of vendible good
 'flax, dress'd out of the same parcel.

'I cannot leave any thing with the readers

‘ more likely to encourage them, and therefore
 ‘ shall conclude by this general view of the
 ‘ whole argument.—We waste by the present
 ‘ misapplication of our labour, three parts in five
 ‘ of the dresser’s industry.—We lose one part
 ‘ in ten nearly of our flax.—And yet we stand
 ‘ our ground, tho’ with difficulty against the
 ‘ Dutch.—Suppose these evils remedied, and
 ‘ what must be the consequence—’tis so plain
 ‘ a one, that it is almost impertinence to draw
 ‘ it.—But it is at the same time of so encourag-
 ‘ ing a nature that I cannot forbear inserting it
 ‘ at length.—The Dutch must be obliged to give
 ‘ up the linen-trade,—which it will be impossible
 ‘ for them to carry on with any profit, when-
 ‘ ever we have learn’d how to husband our
 ‘ advantages.’

I am, &c.

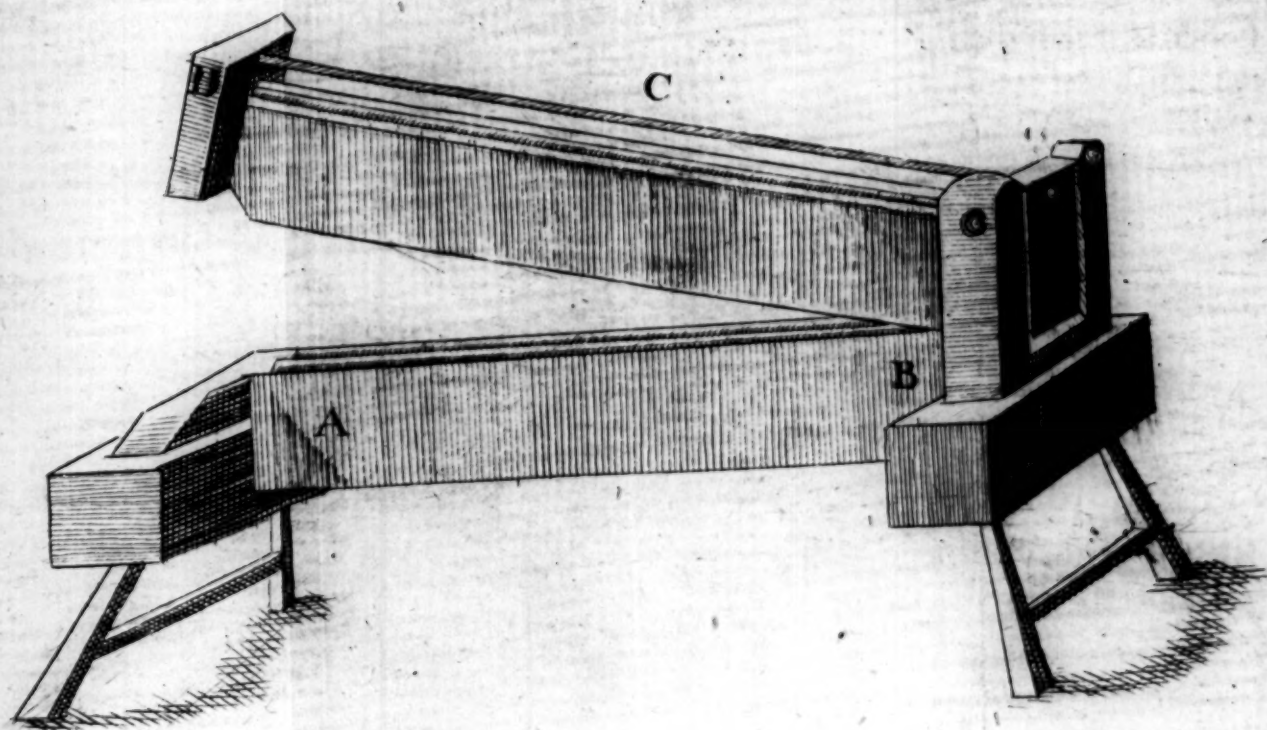
R. M.



N^o XXXVI, Tuesday, Dec. the 13th, 1737.

GENTLEMEN,

‘ **T**HE instrument made use of to break
 ‘ flax, is pretty much the same in this
 ‘ country and in Holland. However, as there is
 ‘ some difference in the make, and more in the
 ‘ manner of applying it, I thought it necessary



WEEKLY OBSERVATIONS. 221

to prefix a draught of the Dutch break * to the directions in this letter; because words cannot convey so clean and distinct a notion of machines, as the reader ought to have before him, when he is to be taught the use of them. It is observable at first sight, that the break consists of two main parts, the one fix'd, the other moveable upon a joint: both these are in every other respect the same, composed of three thin boards, call'd knives, and commonly made of beach, fram'd lengthways, and at small distances from each other, into strong pieces of solid timber. These two similar parts are plac'd the one above the other in the break, the moveable part uppermost, and in such a situation that its knives, when it is let down, fall into the interstices or distances between those of the fix'd or lower part. This lower part stands at a convenient height above the ground, upon four strong feet, and the upper is provided with a handle C to raise and let it down again. This alternate motion breaks the flax, which by the weight and action of the leaver is forcibly pressed against the knives, squeezed into the interstices between them, thereby split, and disposed more readily to part with its bunn in scutching.

* Vide Plate I.

‘ From this short description of the instru-
 ‘ ment, and of its action on the flax,—’tis ob-
 ‘ vious to collect, that the distances between the
 ‘ knives should not very much exceed the
 ‘ thickness of the knives themselves.—The flax
 ‘ would then, instead of being squeez’d and split
 ‘ between them, be bruise’d only by their edges,
 ‘ and, as it often happens by bad breaks, or the
 ‘ unskillful use of them, cut thro’ and made un-
 ‘ fit for use.

‘ The same evil consequence would follow,
 ‘ if the knives had liberty to fall too far into
 ‘ one another. The flax in that case would
 ‘ drag, resist the edges with great force, and re-
 ‘ ceive considerable damage. ’Tis therefore care-
 ‘ fully provided in well proportioned breaks,
 ‘ that the solid piece of timber D, should reach
 ‘ down almost to the edges of the knives insert-
 ‘ ed in it, and stop their descent in time.

‘ These are cautions worth attending to, in
 ‘ the make and proportions of the instrument.
 ‘ —In the use of it there is another which de-
 ‘ serves peculiar notice, and has hitherto escaped
 ‘ our dressers.

‘ ’Tis not the stroke that breaks the flax,
 ‘ more or less it always injures it, and where it
 ‘ is strong and smart, and the flax does not give
 ‘ way immediately, it must inevitably cut it.
 ‘ The experiment is easy—stretch the flax

WEEKLY OBSERVATIONS. 223

' tight over the knives at A, then tye it that it
' may not yield, and two or three smart strokes
' will snap it fairly. The squeezing of the flax
' between the knives is the thing that breaks it.
' —The pressure there is lateral, and tends to
' split the harle, and not to cut it. It should
' therefore be the intention of the dresser, to
' make the stroke as easy, and the pressure as
' great as possible, and this the Dutch attain by
' a proper position of the flax.

' 'Tis well known, from the first principles
' of mechanics, that in its fall, the leaver acts
' with more velocity and greater force at A than
' it does at B. That the stroke there is incom-
' parably smarter and more violent, and by the
' foregoing observation, has therefore a greater
' tendency to damage and cut the flax. On the
' other hand, the pressure there is least—ends
' with the stroke,—and can neither be conti-
' nued or encreas'd. Hence when the flax is
' plac'd at A, as our dressers always place it,
' the whole operation is perform'd in the most
' pernicious way — without pressure, which a-
' lone can split the harle, and by strokes conti-
' nually repeated, which inevitably bruise and
' cut it.

' The reverse is true at B, the stroke is weak
' and slow, and the pressure—or to speak more
' intelligibly to some—the squeezing as great as

‘ possible. The Dutch therefore, in opposition
 ‘ to our practice, always break their flax at B,
 ‘ stand with their faces to the joint, raise the
 ‘ leaver with their left hand at C, and place the
 ‘ flax and turn it under the break as near as
 ‘ may be to the center of its motion.

‘ I have been more particular than usual in
 ‘ explaining the mechanism of this instrument,
 ‘ because I am afraid it has hitherto been little
 ‘ understood : had our dressers apprehended the
 ‘ nature of its action, and the only rational
 ‘ intention of applying it to the flax, they
 ‘ would certainly not have us’d it as they do—in
 ‘ a way, that in the strongest manner counter-
 ‘ acts all the purposes of flax-dressing. Indeed
 ‘ if the method in use among us were more ex-
 ‘ peditious than the other, one might imagine
 ‘ our people had been tempted to break sloven-
 ‘ ly, in order to break quickly ; but as the very
 ‘ reverse is true.—and the Dutch bestow but
 ‘ three or four strokes at most on each end of
 ‘ every handful, while we toil at the same quan-
 ‘ tity a tedious while,—’tis impossible to ascribe
 ‘ our conduct to any other cause, than a pal-
 ‘ pable mistake of the end and design of break-
 ‘ ing.

‘ I hope therefore to be excus’d for enlarging
 ‘ on this head, and beg leave to repeat it to your
 ‘ readers, that to break flax, is properly to split

WEEKLY OBSERVATIONS. 225

‘ the harle, in order to get out the bunn—that
 ‘ this is performed by the break, no otherwise
 ‘ than by pressing the flax between the knives,
 ‘ and that therefore bringing down their edges
 ‘ with great smartness and velocity upon it, can-
 ‘ not answer the intention half so well, as
 ‘ a slow, continued and strong pressure, which
 ‘ can only be attain’d in the Dutch method.

‘ I shall conclude this letter by observing,
 ‘ that whenever we use the break as they do,
 ‘ we may then without any danger make it
 ‘ considerably larger; theirs are so, longer much
 ‘ than ours and weightier, and upon that account
 ‘ work off more flax in the same time. As we
 ‘ use these instruments at present, ’tis well in-
 ‘ deed that they are light,—they do less mis-
 ‘ chief than otherwise they would.—But as soon
 ‘ as we are pleased to imitate the Dutch flax-
 ‘ dresser in the management, we may do it also
 ‘ in the dimensions of his break. It will perform
 ‘ more when it is larger, and do it safely when
 ‘ it is skillfully employ’d.’

I am, &c.

R. M.

The reader will be glad to know that he may
 see a Dutch break among the Society’s machines
 in the vaults of the parliament-house. The pro-
 portions between its several parts are the same

as in the draught, and its length, about four feet.

N^o XXXVII. *Tuesday, Dec. 20th, 1737.*

GENTLEMEN,

‘ **W**HEN the flax is sufficiently split by the
 ‘ break, ’tis the dresser’s next business to
 ‘ clear it of the bunn: this is done by scutching
 ‘ which is nothing more than beating the flax
 ‘ downwards and along the grain, to loosen and
 ‘ throw off the broken parts of the bunn which
 ‘ still adhere to the harle.

‘ There are, however, in this easy operation
 ‘ some cautions worth attending to, and in our
 ‘ manner of performing it some errors to be
 ‘ noted, which will engage me to be more par-
 ‘ ticular in my directions, than the plainness of
 ‘ the subject seems at first sight to demand; and
 ‘ to make them more intelligible, I have pro-
 ‘ cur’d a draught of the Dutch tools, † which
 ‘ differ considerably from ours, and are in the
 ‘ same proportion better.

‘ I have frequently observ’d, in the course of
 ‘ these directions, that the material caution in
 ‘ flax-dressing, is to save the harle from any vi-
 ‘ olent action on its fibres, cross-wise, and
 ‘ athwart the grain; and I have endeavour’d

† Vide Plate II.

Fig. 2.

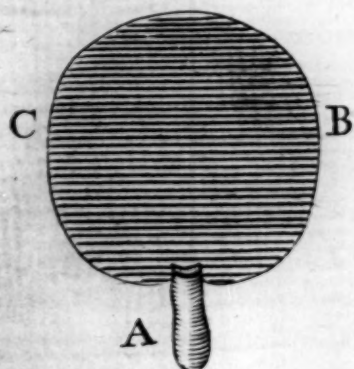


Fig. 1.



the more earnestly to inculcate this leading principle, not only as it contains an epitome of the whole art, but besides, and chiefly because it seems to have escap'd our dressers, who in some degree or other, counteract it hitherto in every operation on their flax.

'Tis indeed impossible in breaking, and in scutching, to prevent all strefs of this pernicious kind upon the harle.—All that can be done is to lessen it as much as possible, and to direct the greater part of that pressure, which the flax must necessarily undergo, laterally, and along the grain : but this is itself a motive to greater care, and more than ordinary caution—for since these operations perform'd with the utmost nicety are still liable to danger, they cannot fail of being eminently hurtful, where they are attended with additional disadvantages from bad instruments, or the unskillful use of them.

How little of this caution appears in the method of breaking which prevails among us, I had occasion particularly to consider in my last— and I hope the importance of the subject will excuse me, for being equally particular upon the other point at present.

Our dressers suspend their flax over one board, and scutch it with another of a square or oblong form which carries a strait edge,

' and is generally very narrow. In this method
 ' every circumstance is in some degree an er-
 ' ror, and attended with real evils, or at least
 ' with inconveniencies. Above all, the make
 ' and figure of the scutch is destructive in the
 ' highest sense.—A handful of flax, when it
 ' hangs freely, as it does in scutching, spreads
 ' itself unequally; the threads lie close and full
 ' towards the middle, thin and scatter'd at the
 ' sides.—In this state the several parts of the same
 ' handful are in strength very different from
 ' each other, and the middle will resist a stroke,
 ' which would snap all the straggling threads on
 ' either side. However a square or oblong
 ' scutch strikes with equal force on every part,
 ' and comes down upon the sides with the same
 ' violence as on the middle. The consequence is
 ' plain. Every stroke tears the scatter'd threads
 ' it meets with, and as others spread into their
 ' place, the next fall of the scutch snaps them,
 ' and the waste of flax goes regularly on to the
 ' end of the operation. This alone were worth
 ' preventing, but the evil extends farther.—The
 ' ends of the flax necessarily rise in scutching,
 ' when a strait edge comes smartly down upon
 ' them.—If therefore the instrument be nar-
 ' row, they lap themselves about it, resist the
 ' stroke, and yield only as they break. That
 ' these are not imaginary objections to our me-

'thod, any one may be convinc'd by observ-
 'ing the quantity of broken threads which lie
 'among the bunn after this operation. Some
 'part indeed of that destruction may be ascrib'd
 'to the excessive violence with which our scutch-
 'ers lay about them ; perhaps a little to a few
 'unguarded strokes which now and then may
 'light upon the board, over which the flax is laid,
 'and bruise the harle between both edges : but
 'certainly the greater portion of the evil lies
 'where I have laid it, and proceeds from the im-
 'proper figure of our scutches. Every part of
 'our management is wrong, but that emphati-
 'cally so.

' The Dutch however guard against every
 'inconveniency together, and as it is their wis-
 'dom never do neglect the smallest.—The last,
 'how inconsiderable soever it may seem, has gi-
 'ven rise to a machine delineated figure 1st.—It
 'consists of a thin board, with a large notch A
 'cut into one side of it, erected perpendicularly
 'upon a frame, which may be of any shape, pro-
 'vided it have weight to keep it steady.—In this
 'notch they hang their flax, which by that si-
 'tuation is secured from the danger of an un-
 'wary blow : 'tis impossible the scutch should
 'fall upon the harle in that dangerous position,
 'where, as it is supported, it resists more for-

‘cibly, and cuts also more readily.—Besides as
 ‘convenient instruments generally answer more
 ‘ends than one together, the dresser’s stroke is
 ‘directed by this machine, his hand protected as
 ‘he holds the flax, and his ease provided for,
 ‘by making it of such a height, that he can do
 ‘his business sitting.

‘The other and greater evils which attend
 ‘our method, the Dutch prevent by the shape
 ‘and breadth of their scutch, which as in figure
 ‘2d is nearly circular, and in diameter little less
 ‘than eighteen inches. The greatest force of
 ‘such an instrument falls exactly where it can
 ‘do least damage,—on the thickest part of the
 ‘whole flax; since as the dresser holds it by the
 ‘handle, A, its greatest action is at B or C, and
 ‘exerts itself on the very middle of the handful.
 ‘The middle therefore, as it is the strongest,
 ‘bears the brunt of what little stroke there is,
 ‘—for the Dutch do not beat the harle with
 ‘the unruly violence of our unskillful people,
 ‘and the loose straggling threads about the sides
 ‘feel no stress, but curl gently round the edges
 ‘of the scutch, and fall down again unhurt.
 ‘’Tis the same with the ends of flax which
 ‘rise upon the stroke, they cannot lap them-
 ‘selves about an instrument of that make and
 ‘size, but when they rise, rise against a broad

'well-polish'd plane, occasion no resistance, but
'drop back smoothly and uninjur'd.'

I am, &c.

R. M.

N^o XXXVIII. *Tuesday, Dec. 27, 1737.*

GENTLEMEN,

'**H**AVING in my former letters follow'd the
'Dutch dressers, in the progress of their
'operations upon flax, 'tis time, in this, to re-
'turn to the seed, which becomes their next im-
'mediate care. 'Tis true indeed, that after
'scutching, the flax in Holland undergoes as it
'does here the heckles, and besides, the fining
'mills, which we are strangers to in Ireland; but
'as this is a distinct and separate trade, and a-
'mong them performed by other hands, the
'common dresser's business with his flax is over,
'and his attendance now bestow'd upon his seed.

'This, your readers will remember, was dis-
'pos'd of from the ripples into stanch conveni-
'ent granaries, there laid up safely in the boles,
'and air'd from time to time, to preserve it
'from damps, or other injury. 'Tis necessary to
'add at present, that these floors are kept as
'dry as possible, and with the utmost nicety pro-
'tected from all moisture, otherwise their seed
'must be laid proportionably thinner to be safe,

‘and occupy abundantly more room—whereas
 ‘by extraordinary caution, the Dutch may al-
 ‘low themselves more latitude in this, as the
 ‘dimensions of their granaries, and the quanti-
 ‘ties of their seed require it.—However they
 ‘seldom exceed four and twenty inches, and
 ‘chuse to spread it thiner where they can.

‘The several branches of flax-dressing, men-
 ‘tion’d in these papers generally take up three
 ‘months—so long therefore the seed lies by
 ‘untouch’d, except an advantageous market, as
 ‘it sometimes happens, calls for greater dili-
 ‘gence: then indeed the flax is thrown aside,
 ‘and the seed attended in the first place, but
 ‘the general rule is otherwise, and in common
 ‘cases, the flax has the precedence.

‘I mention this as an instance of the Dutch
 ‘economy, which can never be too often re-
 ‘commended. The seed receives no damage by
 ‘remaining in the boles three months, and the
 ‘winter season which succeeds, is as convenient
 ‘for threshing as the best; in the mean while
 ‘the flax is ready drest, and fitted for the market
 ‘without interruption or delay. I have already
 ‘observ’d that these arts of husbanding their
 ‘time, and doing things in a regular succession,
 ‘give the Dutch an advantage over us, not to
 ‘be compensated; and which therefore they
 ‘will certainly retain, till we imitate their con-

WEEKLY OBSERVATIONS. 233

'duct. I beg leave to repeat the observation—
 'and apply it to the case before us.—The se-
 'veral branches of their business are dispos'd in
 'so natural an order, that no one interferes
 'with any other, but each is carried on without
 'hurry. Their flax by early sowing is fit for pul-
 'ling by the beginning of July,—rippled by the
 'middle, or the latter end of it,—at the height
 'of the watering season,—when the flax fer-
 'ments most kindly and most readily,—drawn
 'again—and grafs'd sufficiently, early in Sep-
 'tember,—and rough dress'd by the break and
 'scutches sometime in October: 'till then in
 'common cases there is no great demand for
 'seed—time remains sufficient to thresh and
 'clean it before spring,—at a season of the year
 'when nothing else could be so well attended
 '—and then this business goes on speedily
 'and smoothly, without avocation or disturb-
 'ance.

'In our way—any thing is done at any time
 '—as caprice directs, or more generally as ne-
 'cessity drives us on—we have twenty several
 'things upon our hands together, each of
 'them an impediment to every other, and all
 'of them of course done in a hurry and by
 'halves.

' 'Tis indeed a main and general reason of
 'this hurry, that every dealer in flax among us

' carries on three or four trades at once. 'Tis
 ' not possible he should do his business leisurely,
 ' and in good order, who is husbandman, flax-
 ' dresser, weaver, and perhaps bleacher also at
 ' one time: but with this leading evil, many
 ' others act as concurrent causes--above all the
 ' imprudent practice of stacking flax and seed to-
 ' gether, which throws the care of both upon the
 ' dresser at the same individual instant, divides
 ' his industry, and by a necessary consequence
 ' disturbs it. I have attack'd this practice upon
 ' other principles before, but were there no
 ' other inconveniency attending it, this alone,
 ' that it infallibly brings on two distinct articles
 ' of business, and each of them sufficient to em-
 ' ploy the undivided labours of a family, is e-
 ' nough without any other reason to explode it.

' 'Tis another consequence of the same prac-
 ' tice nothing less pernicious than the former,
 ' that separating the flax and seed, where they
 ' have been stack'd together till the spring, is
 ' generally perform'd by common threshing.
 ' There is not leisure for tedious operations--
 ' rippling off the boles, and then pressing out
 ' the seed--seasons will not wait, but when they
 ' call must be immediately obey'd: dispatch is
 ' the only thing considered,—and the quickest
 ' methods must be us'd, however destructive to
 ' the flax.

' I don't know whether it be worth my while,
 ' to prove that the flail damages the flax. It
 ' must occur to any one who has seen its action
 ' upon straw, that it cannot be otherwise—when
 ' that has been severely thresh'd it is hardly fit
 ' for use, and certainly an instrument which
 ' tears and cuts the one, must in proportion also
 ' weaken and impair the other.—But this you
 ' will give me leave to mention, that the flail
 ' tosses and disorders it, and entails double la-
 ' bour on the dresser, when he comes to sort it
 ' afterwards : as also that this instrument never
 ' threshes clean, and occasions a considerable
 ' waste of seed.

' As the several observations in this paper, have
 ' led me by degrees to support the practice of
 ' the Dutch, in laying up their seed in granaries
 ' till the flax is drest, in opposition to a method,
 ' which has of late prevail'd among us.—Give
 ' me leave further to take notice, that when
 ' their dressers have leisure to attend their seed,
 ' they find in their close stanch granaries, the
 ' whole quantity that they there deposited. 'Tis
 ' true the ripest boles, where the flax has not
 ' been pull'd too green, open and shed their
 ' seed, but it lies securely on the floor, and is
 ' as safe without the bole, as it could have been
 ' within it. In our darling method of stacking

‘ flax unrippled, whatever sheds is lost: the
 ‘ ripest, driest boles come empty to the barn,
 ‘ while the best and finest seed is rotting in the
 ‘ haggard.

‘ Having sufficiently, I hope, justified the prac-
 ‘ tice of the Dutch,—laying up their seed in
 ‘ granaries,—’tis now time to bring it out, in
 ‘ order to separate it from the boles, and clean
 ‘ it: in the latter, as they are nicely curious,
 ‘ so I intend to be particular, and therefore re-
 ‘ serve all directions on that head to be laid to-
 ‘ gether in my next. This letter I shall con-
 ‘ clude, by a short account of the former ope-
 ‘ ration, which requires no comment or enlarge-
 ‘ ment.

‘ The boles are broke by horses, drove over
 ‘ them as they lie three feet deep or there-
 ‘ abouts, upon an even floor pay’d with brick
 ‘ or stone: sometimes, to make more haste, they
 ‘ drag an heavy cart behind them; at other
 ‘ times they work alone hood-wink’d, tied head
 ‘ and tail to one another in a circle. In either
 ‘ way the operation is the same, they tread the
 ‘ seed out of the boles, and that they may not
 ‘ injure it, they and the cart, when it is us’d,
 ‘ are equally smooth-shod.

‘ This is sufficient on a practice, which in-
 ‘ cludes no difficulty, I shall only add, that on

WEEKLY OBSERVATIONS. 237

'a smooth hard floor, I have tried an heavy rolling stone, with very tolerable success.'—

I am, &c.

R. M.

N^o XXXIX. *Tuesday, January the 3d.*
1738.

GENTLEMEN,

'AS there is no crop that suffers more from
'weeds: 'tis of great importance in flax-
'husbandry, to cleanse the seed from pernicious
'mixtures of all foreign ones. The Dutch ac-
'cordingly are remarkably curious in this point
'--neglect no possible caution, and stick at no ex-
'pence. I promis'd in my last to lay before your
'readers a distinct and particular account of the
'method they pursue; and, to do it in the com-
'pass of one paper, 'twill be necessary to hus-
'band every part of it. I shall therefore con-
'fine myself strictly to my task, and make no
'other observations on the subject, but such as
'arise out of it immediately, and conduce di-
'rectly to give a clearer notion of their ma-
'nagement, and of the several purposes intend-
'ed by the several parts of it.

'Wind, in all countries and all cases, is the
'chief instrument in cleaning seeds; as they
'are every one of them intrinsically heavier

' than the coats, husks or boles, in which they
 ' are contained; the same force, applied to both,
 ' carries them to different distances, in propor-
 ' tion to their weight, and consequently parts
 ' them. 'Tis however true, that wind, acting
 ' naturally, is an instrument attended with a
 ' great many inconveniencies: it blows not con-
 ' stantly, and frequently disappoints the dres-
 ' ser in his time of utmost need—when it does,
 ' it is not always in the best direction to answer
 ' the situation of his barns—and without doors,
 ' except it be attended with fair weather, 'tis
 ' entirely useless to his purpose—Besides, when
 ' its force can be applied in the best way, 'tis
 ' even then not equal; but generally acts by
 ' sudden blasts, which, 'tis well known, disor-
 ' der the whole work, and occasion a conside-
 ' rable waste of seed.

' To avoid these inconveniencies—The
 ' Dutch have invented a machine, delineated
 ' *fig. 1.* † which creates an artificial wind, uni-
 ' form and steady in its action—and always
 ' ready at command.

' The active part of this engine is a fan, de-
 ' scribed in *fig. 2.* which by its circular mo-
 ' tion on its axis, affords a wind, in strength
 ' proportionable to the velocity with which it
 ' moves, and therefore capable, another fa-

† Vide Plate III.

‘ yourable circumstance, of several degrees of
 ‘ force, as the dresser finds convenient.

‘ This fan is inclos’d in a large box or case
 ‘ K, L, and occupies one half of it; separately
 ‘ described, and in a different view in *fig. 3*.
 ‘ It is suspended freely on its axis, and turn’d
 ‘ by the handle A. The other half of the box
 ‘ is empty and receives the seed, as it falls from
 ‘ the hopper B, on a sloping floor, visible at C.
 ‘ Along this the seed slides out of the machine
 ‘ at D, while the boles and lighter dirt are car-
 ‘ ried out by the violence of the wind at E.

‘ This is a general account of the operation.
 ‘ —The fan creates a wind, more or less vio-
 ‘ lent, at the discretion of the dresser. This
 ‘ wind acts forcibly as it is confined within the
 ‘ winnow, and always in the same direction—
 ‘ lengthways of the machine from A to E: in
 ‘ its passage it meets the seed, constantly falling
 ‘ from the hopper, and impels it towards E;
 ‘ nearer or farther from it, according to the
 ‘ weight of it: good seed however, never goes
 ‘ so far as the end of the machine, it comes
 ‘ down within the box, and the empty boles
 ‘ and rotten seed are carried out together strait
 ‘ before the wind.

‘ This would be sufficient—were it not that
 ‘ the contrivance of the hopper is ingeniously
 ‘ calculated to save labour, and upon that ac-

'count deserves some notice. It hangs by string
 'upon four pegs, and moves with little force
 'which may therefore, without any stress upon
 'the workman, be communicated to it by the
 'same hand that moves the fan. To this pur-
 'pose a triangular board F, is fixed upon the
 'handle of the fan, and turns along with it. The
 'angles of this board, in their rotation, press
 'against the lower end of a little lath, incurva-
 'ted, as in the figure, which moves freely upon
 'a peg at G. This end accordingly recedes from
 'the pressure towards H, and consequently the
 'upper end moves the contrary way to I, and
 'by a string that ties them both together, draws
 'the hopper after it, out of its natural situa-
 'tion. When this pressure ends, and the sides
 'of the little triangle are next the lath, the
 'hopper hangs freely, returns to its former
 'place, and takes the lath along with it, till the
 'next angle of the little triangle begins to act
 'and so alternately as long as the fan moves.

'I need not add, that as the hopper is thus in
 'continual agitation, the seed sheds down and
 'supplies the fan. The thing is too obvious to
 'be told.

'When the seed is well separated from the
 'boles, by going thro' this engine as often as
 'need requires: the next care is to cleanse it
 'from all foreign bodies, which from their

Fig. 1.

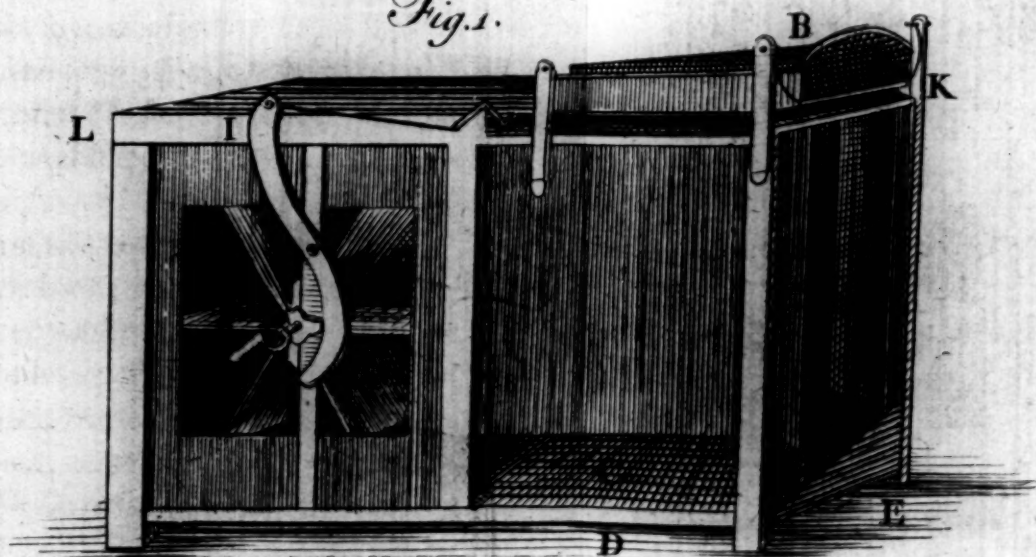


Fig. 2.

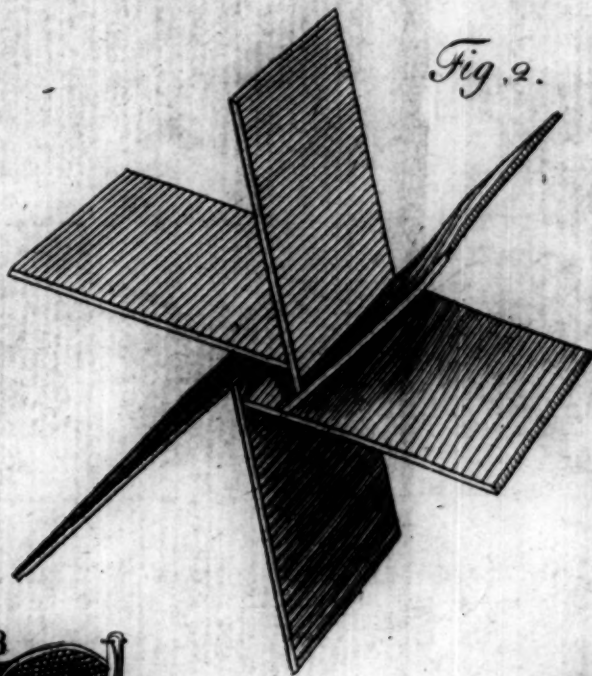
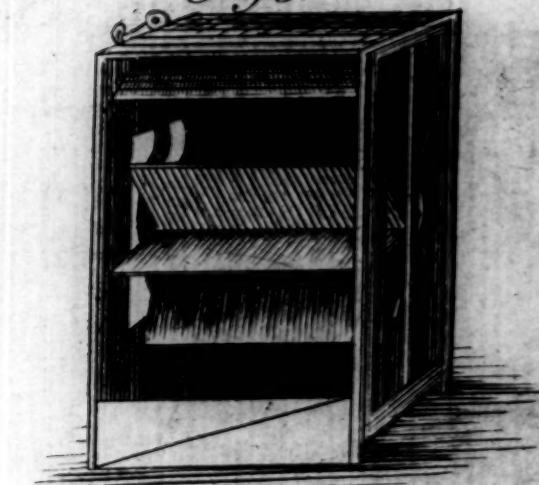


Fig. 3.



weight could not be carried off by the action of the wind. The Dutch begin by the larger kind, such as stones, clods of earth, and especially pods of seed or roots of plants. These are got out by letting the flax-seed thro' a sieve, whose holes it can run thro' with ease, while bodies of a larger bulk are retain'd, and thereby separated from it.

' This operation is soon over, but as it does not answer perfectly in removing all noxious seeds even of the larger kind, it is succeeded by another to compleat what the former has begun. The sieve made use of now, has its holes of an oval shape, and of a size just sufficient to let thro' the finest and largest flax-seed. To the oval passages, seeds of a different make cannot accommodate themselves, and except they be considerably smaller than the dimensions of the holes, those are retain'd in this second operation, which had escaped the former.

' Small seeds still remain among the flax-seed, which is therefore put once more into a sieve, but of a different make, and to a different purpose: the holes in this are adapted only to let out the smaller noxious seeds, which had gone thro' the former operations with the flax-seed, and are sifted out in this while the latter is retained.

‘ After all this care the Dutch go one step
 ‘ farther, and make use of the wire-harp, or
 ‘ screen. In this, as the flax-seed falls slowly
 ‘ from the hopper, it slides gently down the
 ‘ sloping plane, and in its motion throws off all
 ‘ dust, and every other noxious mixture. Stree,
 ‘ fairy-flax, and other hurtful seeds, slip thro’
 ‘ between the wires, and are separated from the
 ‘ flax-seed, which, after this necessary operati-
 ‘ on, is then, at last, as clean as art and industry
 ‘ can make it.’

I am, &c.

R. M.

Our ingenious correspondent has probably neglected to procure a draught of the wire-harp, from an opinion that the shape and make of it are sufficiently known among us; the malt-screen, an instrument in common use, being so very like it, that they differ in nothing more than in the closeness of the wires; which lie at smaller distances in the wire-harp, than in the other. However, for fear any of our readers should want further information, we think it necessary to apprise them, that there are among the Society's machines, a flax-screen, in its full dimensions, and a small model of the winnow, mentioned in the beginning of this letter.

N^o XL. *Tuesday, January 10th, 1738.*

GENTLEMEN,

I Mention'd in one of my former letters, a trade carried on separately in Holland, and distinguish'd from common flax-dressing as it is generally understood, and manag'd in this kingdom, by the name of fine flax-dressing. This trade consists only of two branches, fining the flax and heckling it; and yet affords abundant employment for many hands, and is attended with sufficient profits, to be made a distinct and peculiar business. The former branch of this beneficial occupation we are strangers to entirely, and the latter is perform'd among us in so slovenly a way, that in effect we have it yet to learn. I shall therefore be particular in both, and deliver my directions to the dresser, fully and minutely, as those should always be conceiv'd, which are design'd to introduce practices entirely new.

Fining flax, is in other words splitting the harle into its smallest fibres; and is an operation supplemental to the action of the break, which splits the harle indeed, but clumsily, and parts only the first and grossest threads. 'Tis perform'd by an engine, which I beg leave to call a fining mill, and which hereafter shall be

' particularly describ'd. The Dutch are in pos-
 ' session of this engine, and have applied it to the
 ' purposes of flax-dressing, as far as I could
 ' learn, from the infancy of the linen manufac-
 ' ture, and 'tis certainly a matter of surprise
 ' that the use of it has been so long conceal'd
 ' from us. For what reason, and from what
 ' extraordinary motives, so material a circum-
 ' stance should be obstinately overlook'd, 'tis not
 ' easy to conceive, nor am I willing to inquire;
 ' true it is that no directions, hitherto publish-
 ' ed, mention it, and that our practice shows,
 ' in too many pernicious instances, that the
 ' knowledge of it has never reach'd this country.
 ' Nothing has so much retarded the progress of
 ' the linen trade in Ireland as the mischievous
 ' custom of pulling our flax green: this, among
 ' many more particulars, can be ascrib'd to no-
 ' thing else than our ignorance of fining mills,
 ' which is unquestionably the true and genuine
 ' source of that prevailing error, and the leading
 ' failure in our management.

' It were too hard a censure on our dressers
 ' to imagine, that they wantonly threw away
 ' their seed and prefer'd green and consequent-
 ' ly weak flax without any hopes of compensa-
 ' tion. They were unwarily misled by a receiv-
 ' ed opinion, which the fining mills alone could
 ' effectually confute, that full grown flax could

'not by any management, be wrought up to
 'a fine staple. By this opinion they proceeded,
 'and looking upon strength and fineness as in-
 'consistent qualities, sought the latter in green
 'flax to the detriment of the manufacture. As
 'this was certainly the motive of their conduct,
 'so it is the only apology that can be made for
 'it: if strength and fineness can be had together,
 'there is no need of argument to recommend
 'the method that procures them, and it cannot
 'be supposed that whenever their consistency is
 'fairly and experimentally made out, any should
 'be found so destitute of common sense as to
 'chuse either singly.

'I hope it will not be expected that I should
 'waste my own and your readers time, in pro-
 'ving by elaborate arguments that flax, as every
 'other vegetable, is then strongest when it is
 'thorough ripe: the thing is certain, and in the
 'vegetable oeconomy, as well as in the animal,
 'maturity is requisite to give the several parts
 'their greatest strength and toughness and to
 'harden the grizzels into bones. But how the
 'fibres, which certainly grow coarser as they
 'increase in strength, may yield threads of equal
 'fineness with those of greener flax, may de-
 'serve some illustration.

'To clear this point, I must desire your read-
 'ers to observe that the harle consists of longi-

'tudinal fibres tied together by little ligaments
 'or membranes: that these fibres are them-
 'selves compos'd of smaller fibres united by lesser
 'ligaments, and that these again are a system of
 'small threads, which have also their constitu-
 'ent threads or fibres join'd in the same man-
 'ner. This regular succession of component
 'fibres goes on beyond the reach of thought
 'or imagination, and in the language of mathe-
 'maticians to infinity, and consequently how
 'fine soever you suppose any given fibre, 'tis in
 'effect a bundle of other fibres, and may be still
 'unfolded into threads of a finer texture. Hence
 'it becomes unquestionably plain, that the
 'coardest flax, whose first component fibres
 'are of the largest size, contains however fibres
 'of some other order, of too nice a make for
 'any artificer to use, and not to be wrought by
 'human skill. The finest therefore we can want
 'may be found, in the ripest, strongest, coars-
 'est flax, provided we had ingenuity to split it,
 'and machines properly contriv'd to unfold the
 'several fibrous systems of which it is compos'd,
 'without injuring or breaking the small con-
 'stituent threads. How far art can go and what
 'may be perform'd by machines, experience
 'only can determine; I would not therefore be
 'understood to mean, that the coardest harle
 'yields, in fact, the finest fibres we can use. I

'have no warrant from experiment to proceed
 'so far in my assertion, and 'tis possible there
 'may be a harshness in some flax to prevent its
 'splitting easily, and dispose it to snap under
 'the engine, when its action is forcibly exerted,
 'or any time continued. My design in the fore-
 'going observation has been only to remove
 'all prejudices against the use of ripe, strong
 'flax, by shewing from the very make and
 'structure of it, that it may receive an artificial
 'fineness from machines, and to prepare the
 'way for what I now assert, that by the help
 'of those in Holland, the same flax is common-
 'ly improved in a degree incredible to those,
 'who have not sufficiently attended to the cu-
 'rious texture of that plant.

' 'Tis not easy exactly to determine to what
 'degrees of fineness flax arrives, or to ascertain
 'in what proportion it splits in going thro' the
 'mills: but, I believe the most obstinate among
 'us will allow, it receives benefit sufficient to
 'prevent all necessity of pulling green, when I
 'have assur'd them from undoubted facts, and
 'my own knowledge, that the fine flax-dresser,
 'who in Holland buys his flax ready broke and
 'scutcht, sells weight for weight again, from
 'the fining mills and heckles, at nine times the
 'price at which he bought.

' No body will understand me of whole par-

' cels—I mean that of such flax as he can pur-
 ' chase by the stone at five shillings, for instance,
 ' ready scutcht—He afterwards can sell a stone
 ' of the finer part for 2l. 5 s. 0 d.— From the
 ' difference of the price, we may judge of the
 ' difference of the staples; and when that is e-
 ' quitably estimated, I am willing to leave it to
 ' your readers, whether for the future, we
 ' should look for fineness in green flax, to the
 ' loss of all our seed, or bestow it on the ripest
 ' and the strongest by the use of proper en-
 ' gines, which, as shall be seen hereafter, re-
 ' quire but little labour or expence.'

I am, &c.

R. M.

N^o XLI. *Tuesday, January 17, 1738.*

GENTLEMEN,

' **T**HE advantages which attend the use of
 ' fining mills in Holland, and which I
 ' could wish to transplant into this kingdom,
 ' are not confin'd to the one mention'd in my
 ' last: 'tis indeed the most considerable, as it is
 ' also the most obvious, and that which results
 ' most naturally from the make and texture of
 ' the flax; but the rest, tho' something more
 ' remote from observation, and perhaps of less
 ' importance to the manufacture in themselves,

'are however of sufficient moment to deserve
'any illustration I can give them.

'From the short account in my last letter of
'the constituent parts of flax, it cannot fail to
'occur to every reader, that upon the splitting
'of the harle, the little ligaments or membranes
'which connect its fibres, break in the opera-
'tion; since it is evidently plain, that till these
'snap by the pressure of the engines, the fibres
'cannot recede considerably from one another,
'much less separate entirely.

'These broken ligaments however adhere,
'like so many little rags, to the sides of the
'threads or fibres, and constitute that fuzzy,
'downy substance, which is plainly observable
'about them.

'This, where it is not remov'd, shews itself
'after spinning in the yarn, and even after wea-
'ving in the cloth; gives both a rough and dis-
'agreeable appearance; and takes off greatly
'from their value.

'Our manufacturers, tho' unacquainted with
'the cause, are but too sensible of the effect;
'they find this fuzziness in their finest cloths
'unconquerable, and look with envy on the
'skin of the Dutch linens, which they cannot
'imitate, even at a distance, in their own. I
'am not ignorant that some among us have
'sought for remedies to this evil, in higher dres-

' sings, which lay the downy substance for a
 ' time; that it has been charg'd by others upon
 ' loose and careless spinning; but from the
 ' make and texture of the plant, 'tis evident
 ' the evil lies exactly where I now have laid
 ' it, and consequently admits no cure, but by
 ' rubbing off those ragged membranes, which,
 ' in defiance of all art, will disfigure the flax,
 ' the yarn, and the cloth, till they are totally
 ' removed.

' High dressings may indeed glue them down
 ' upon the cloth, and prevent their appearance
 ' to the eye; but the first washing sets some at
 ' liberty again, and every succeeding washing
 ' more. Less still is to be expected from the spin-
 ' ner in this point; the broken ligaments are
 ' too short to be wrought by any art, into the
 ' yarn. They afford the twist no hold, and start
 ' from it, at the instant that the pressure of the
 ' finger ceaseth. The only rational attempt is to
 ' get rid of them entirely, and to lop off those
 ' excrescencies, which no skill or industry can
 ' otherwise subdue.

' This the fining mills effectually accomplish,
 ' and at the same time that they split the harle,
 ' rub off the ligaments, which the break can on-
 ' ly tear. How the operation of these engines
 ' answers both ends at once, requires a thorough
 ' notion of them to explain: I shall therefore

do no more at present than assure your readers, that flax improv'd by the action of the spinning mills, affords to a good spinner yarn as smooth, as tight and smart as a hair fishing-line, tho' examin'd by a magnifying glass. I need not add, that this excellency holds afterwards also in the cloth. The thing is obvious, and some things of more importance remain still to be observ'd.

Harshness, as it is generally call'd, seems to be a defect in flax, much talk'd of and little understood, and is generally and indifferently ascrib'd to every kind of it, which proves stubborn and unpliant, and yields uneasily to the intention of the artist. 'Tis however certain that this effect may rise from different causes. Sometimes harshness is only another word for coarseness, which like the former, makes the flax work clumsily, and refuse a ready obedience to the hand. In other cases it may possibly imply a wrong conformation of the fibres, an unevenness and roughness in their texture, which disappoints the manufacturer's endeavours and foils his skill and industry; but more frequently, if I mistake not, it denotes the plain and natural effect of a cause little suspected in the case, and which as far as I can find, has not hitherto been thought of. When the membranous ligaments already mention'd

' adhere in any quantity to the threads or fibres
 ' of the harle, they rub against one another, and
 ' occasion a considerable friction in spinning first,
 ' and afterwards in every subsequent operation.
 ' Hence it is most commonly that our flax is so
 ' untractable ; those numerous excrescencies
 ' stick, and fret and drag under the artist's fin-
 ' ger : the fibres take the twist unkindly and with
 ' labour, and after all neither lie so close and
 ' tight together nor work so true and evenly.
 ' This account of harshness stands to reason,
 ' and is besides confirm'd by experience : the
 ' same engines which remove that fuzzy, downy
 ' substance on the flax, already mention'd, re-
 ' move at the same time all stubbornness and
 ' harshness; these therefore depend on the same
 ' cause, as they admit of the same remedy, and
 ' are both effects of the little broken ligaments
 ' adhering to the harle. All these, as it has
 ' been observed above, are rubb'd off by the acti-
 ' on of the fining mills, which procure thereby a
 ' third advantage to the manufacturer, and be-
 ' stow an unusual softness on his flax ; and this,
 ' I can assure your readers, in a degree not easi-
 ' ly conceivable, by those who are unacquaint-
 ' ed with the use of them.

' I have chosen to introduce the description
 ' of the fining mills by some account of their
 ' usefulness and excellency, to engage the at-

tention of your readers. This is the first publication that has been made of them, and some might possibly suspect, that a machine so long conceal'd, had not much to recommend it, and was neglected rather than unknown.

To remove this prejudice, I have endeavour'd to support by argument, what I have seen of its good effects in Holland; and to prove from the make and texture of the harle, that it is capable of those improvements, which the manufacturer among us is in these letters encourag'd to expect. This has led me into some observations and reflections more philosophical, perhaps, than agrees at the first view with the main intention of your papers, the instruction of the meaner sort; but as this is a case of great importance, and all practices entirely new, must obtain admittance, and receive encouragement, especially from gentlemen, I have thought myself at liberty to go for once out of the common road, and address particularly the more knowing of your readers. If I have any ways succeeded in this attempt of convincing them, and convey'd the same opinion of the fining mills to them which I entertain myself, they'll be glad to find in my next letter, an exact description of their structure, and some account of their action on the harle. In the mean time, I shall dismiss

' them by observing, that the advantages which
 ' accrue from the operation of these mills, ex-
 ' tend thro' every branch of the linen manufac-
 ' ture, and are multiplied into many more as
 ' the flax proceeds thro' the wheel, thro' the
 ' loom, and thro' the bleaching-green. Fine,
 ' smooth, soft flax lies close and even in the
 ' yarn, works in the linen tight and true, and
 ' bleaches equally and well; or to speak the same
 ' in other words; fine, smooth, soft flax, and
 ' which has strength sufficient, has all the per-
 ' fections flax can have, and is fit for every
 ' purpose.'

I am, &c.

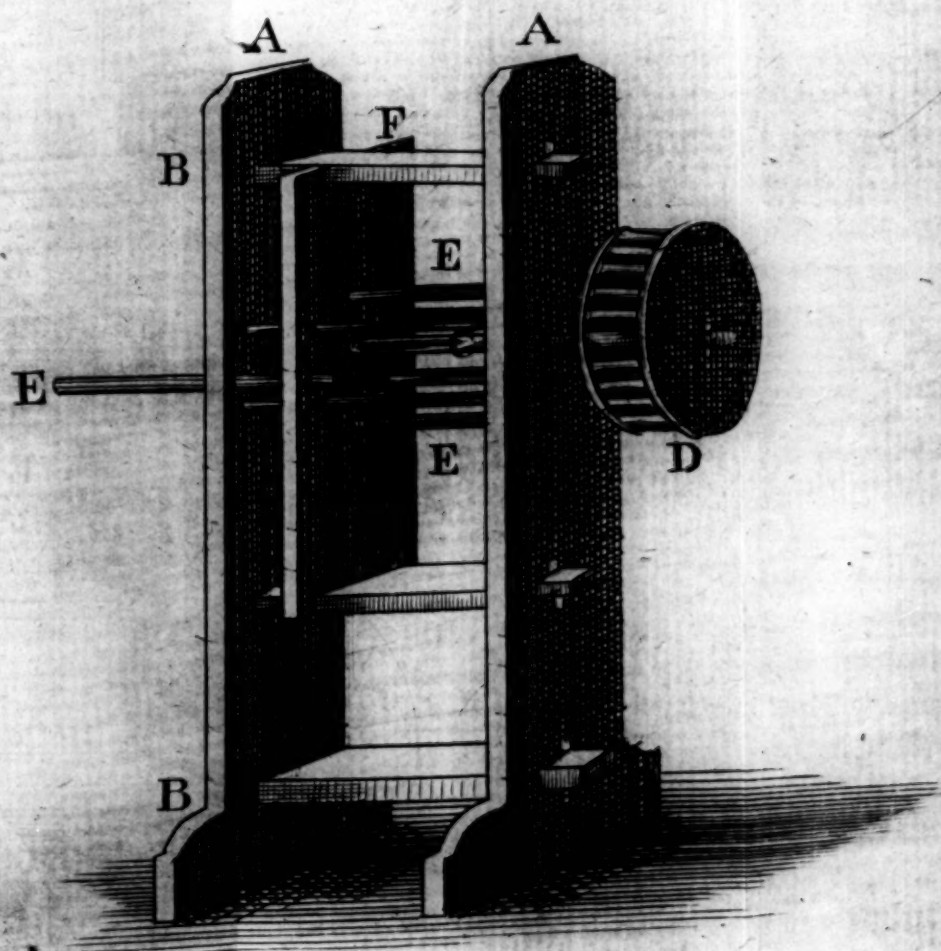
R. M.

N^o XLII. *Tuesday, January 24th, 1738.*

GENTLEMEN,

' **T**HE fining mill, † which I have promis'd
 ' to describe in this letter, consists of se-
 ' veral parts, some of which are absolutely re-
 ' quisite to its action, and others intended only
 ' to give the former their full play, and to make
 ' them work commodiously. This distinction
 ' is in all machines a necessary one, that the
 ' reader may the better be appriz'd, where he
 ' must adhere strictly and closely to his model,

† Vide Plate III.



and how far he is at liberty to recede from the draught before him, without forfeiting the benefits accruing from the engine.

‘ In the fining mill, the moveable spindle C, and the cylinders or binders E, dispos’d circularly about the former, as their axis, are the necessary parts. The frame and the wheel are arbitrary ones, may be chang’d at pleasure, and varied into any form which will admit of easy motion in the spindle, and a circular position in the binders.

‘ However, as the Dutch machine is certainly contriv’d in the plainest, cheapest and most commodious manner, I shall in this description copy from theirs exactly, and recommend it to the readers in all its parts without distinction.

‘ The frame, as it is observable in the draught, is composed of two strong planks A, A, standing perpendicularly upon the floor, and retain’d in that position by three horizontal boards mark’d severally in the figure with a B. These are design’d to give steadiness to the whole engine, and should therefore be strong and tight, not to yield in the operation, which is attended with more stress upon the frame, than an uncurious observer would expect.

‘ Two of these, the uppermost, besides the

' use common to them all, serve another pur-
 ' pose, and receive a third perpendicular plank
 ' F, moveable between them, and therefore cal-
 ' led a slider. This plank should be inserted in
 ' the frame as tight as possible, and compress'd
 ' as strongly, that in sliding along the boards, it
 ' may retain its erect position, and be carried
 ' forwards and backwards as occasion serves, pa-
 ' rallel always to itself. From the destination
 ' of this slider, which shall be explained below,
 ' it is acted upon with considerable force when
 ' the machine is set a-going; it should therefore
 ' be proportionably strong and firm, and as
 ' tough as any part of the whole engine.

' The frame thus finish'd; the two planks
 ' A, A, and the slider F, are bored thro' seve-
 ' rally, and in the same horizontal line, to ad-
 ' mit an iron spindle C, inserted at one end in
 ' the large wheel mark'd D.

' Round this hole are dispos'd, in an exact
 ' circle, eight other holes, to receive the binders
 ' E, which are nothing more than wooden cy-
 ' linders of an inch diameter, which, like the
 ' spindle, run horizontally thro' the whole
 ' frame, go in at either of its sides, and proceed
 ' thro' the slider to the other.

' 'Tis not necessary to describe the wheel,
 ' and I have left it to the choice of the engraver,
 ' to annex any kind he pleas'd, to the spindle in

WEEKLY OBSERVATIONS. 257

the draught. The make and size of it depend entirely on the power applied to this machine, and must be of a different structure, as it is intended to be mov'd by wind or water, by horses or by hand. One thing only will require to be observed, that the movements must necessarily be contriv'd to turn the wheel two different ways, from the left hand to the right, and back again from the right hand to the left: without this the operation can't proceed—as will appear by the short account of it with which I shall now conclude this paper.

To understand this clearly, the reader must be first appriz'd that the iron spindle has an eye which extends from end to end of it, and is plac'd in an horizontal situation, when the engine is to receive the flax. Thro' this eye, the dresser runs his flax divided into little bundles, as it is generally imported into this kingdom: each of these is separately inserted, and alternately from right to left, and from left to right: hence when the spindle is loaded with its complement, six pounds Dutch or thereabouts, the ends of all these little bundles are regularly and equally dispos'd on either side of it. These ends drawn out about three inches, are tied over the spindle, each of them to its next neighbour on the other

'side, and the flax thus fasten'd, lap'd about it
'half one way and half the other.

"Tis plain, that to load it in this manner,
'the wooden cylinders which surround the
'spindle, must be drawn out of the way, as one
'of them is represented in the figure; but when
'that is over, they are forc'd back to their for-
'mer situation to compress the flax, and then
'the wheel begins to move, and the machine is
'set a-going.

'If upon tryal, the flax is not sufficiently
'confin'd, or if it be the intention of the dresser
'to give it all the fineness which the engine
'can bestow, the slider already mention'd and
'describ'd, is then of use, and brought forward
'on the spindle, contracts the space which the
'flax occupied before, and drives it forcibly un-
'der the binders; and as in this position it bears
'the whole pressure of the flax, 'tis obvious as
'I have observ'd above, that it should be very
'strong, and firmly inserted in the frame.

'If I have succeeded hitherto in conveying to
'your readers a clear notion of the several parts
'of this machine, and the position of the flax,
'they will readily apprehend at present that
'when the spindle turns, it draws no more than
'one half of the little bundles after it, close lap'd
'about it, and strongly compress'd between the

'binders; while on the contrary, the other
 'half is unlap'd by the same motion, riseth
 'between the binders, and resists the action of
 'the spindle. 'Tis therefore necessary that the
 'wheel should move regularly and alternately
 'one way first, and then the other, that the
 'bundles may undergo successively the several
 'parts of the operation, rise between the bind-
 'ers, and then be stretched round the spindle.
 'Either of these singly, would answer the end
 'imperfectly, together they split the flax, open
 'its fibres, and if I may be allowed the expres-
 'sion, polish them.

'I cannot compare this operation to any
 'thing in use among us, which can give a dis-
 'tinct notion of it: those however, will under-
 'stand it pretty well who shall conceive of it,
 'as something not unlike the rubbing of flax
 'forcibly between their hands:—as that would
 'do, it splits it, and by an alternate motion the
 'same in kind, tho' stronger and more com-
 'modious than the former, rubs off all excref-
 'cencies, and makes it smooth as well as fine.

'What I have said of its advantages already,
 'will excuse me from recommending this ma-
 'chine at present; I shall therefore conclude
 'abruptly, by observing that the Dutch turn the
 'wheel successively, twice one way, and twice
 'the other; and that fourscore of these double

turns each way, advance flax to the greatest
 fineness it can receive from art. *I am, &c.*
 R. M.
 From the trial made of fining mills, since the
 first publication of these letters, we are able to
 assure the reader that they fully answer all the
 purposes assigned them by the ingenious au-
 thor; with this additional advantage, that by
 the use of them the colour of the flax is consi-
 derably improv'd.

N^o XLIII. *Tuesday, January the 31st, 1738.*

GENTLEMEN,

IT might be an occasion of surprize to some,
 should I proceed to give directions about
 heckling without taking previous notice of
 the beetles: I beg leave therefore, to inform
 your readers that the use of them is perfectly
 unknown in Holland, and that wherever the
 fining mills are introduc'd there can be no
 occasion for them. Those who have well con-
 sidered the only possible design of beetling,
 and observ'd what has been said of the purposes
 intended by the fining mills, must be sensible
 that the ends pursued in either way are per-

fectly the same, and that therefore the introduction of the latter entirely supersedes the former; which is indeed no more than a clumsy, and a lame expedient to do that imperfectly, with immoderate labour and expence, which the mills perform expeditiously and neatly, easily and at little cost.

I shall not detain your readers with arguments and illustrations to prove so plain a point. The strongest prejudice may be trusted in this case where the advantages lie all on the same side, and shew themselves so readily that they cannot be mistaken. 'Twill be more useful to proceed to the observations upon heckling, with which I shall conclude, at the same time, this letter, and my directions to the flax-dresser.

Every body knows that heckling is design'd to open and part the fibres which were split in the foregoing operations, and to separate the tow, the shorter, coarser, harsher threads, from those which are properly call'd flax, the longer, the finer, and the softer. To convey the clearest notion of the whole performance, and the ends intended by it to the reader, I should chuse to call it combing: the heckles act exactly like so many combs, and perfectly to the same purposes, to throw off all foreign bodies, all damag'd broken fibres, to untangle

‘and part the rest, and to lay the whole parcel
‘neat and smooth.

‘’Tis a plain consequence of this analogy,
‘that as in combing, so in heckling, nothing is
‘more pernicious than violence. A heckler who
‘lays about him with unruly force, makes tow
‘as fast as he removes it; breaks every thread
‘that is any ways engaged among the rest, and
‘frees it only by destroying it. Upon this ac-
‘count, it has always been to me matter of
‘great surprize, to see strong brawny fellows,
‘trusted with an instrument, which requires the
‘lightest hand and gentlest touch, and should
‘be applied to flax with the utmost care and
‘tendernefs. In Holland, they reserve the use
‘of it to their women and their children, and I
‘believe ’tis an absurdity peculiar to ourselves
‘to assign robust and able men a task, which they
‘can’t perform to purpose, till they disuse their
‘strength and vigour, and learn an artificial
‘weakness.

‘I have ventur’d upon a coarse comparison
‘to explain heckling to your readers, because
‘I know no other so natural and proper; give
‘me leave to make further use of it, and ob-
‘serve from the same analogy, that heckling
‘large bundles at a time, is eminently pernici-
‘fous to the flax. The more fibres are taken
‘up together, the more of them certainly will

'be entangled, the greater therefore the resistance they will make, and, by a necessary consequence, the more of them will snap, and be wrought off into tow.

'The same analogy leads to another material observation—Flax should not be laid far over the heckles in the beginning of the operation. But, as in combing, the heckle should be first applied to the extremities, and when they are clear and free, admitted further, and by slow degrees, into the body of the flax; without this caution the entangled fibres are drawn back upon another set of entangled threads behind them, and that perhaps upon a third; till the whole parcel is embarrass'd, and no remedy remains but that which is too often us'd, I am afraid, to the destruction of our flax, drawing the heckles thro' by main force and at all hazards.

'It would be a hard matter, to calculate exactly how much we suffer annually, by our notorious negligence in these several above-mention'd articles; nor would I chuse to reproach my countrymen by rating their mismanagements at the full value, and estimating their errors too precisely: I shall therefore totally abstain from an attempt of this kind, and trust it to their own reflections, how far the misapplication of the strength and vigour

‘ of our people, and the clumsy and injudici-
 ‘ ous use of instruments, which cannot be han-
 ‘ dled too discreetly, must affect our manu-
 ‘ facture.

‘ ’Twill be less invidious, and more useful,
 ‘ to lay before your readers a particular account
 ‘ of the method in use in Holland, and to fol-
 ‘ low the Dutch dressers thro’ the several stages
 ‘ of this operation. Their example will, I hope,
 ‘ influence our people, and invite them to pro-
 ‘ ceed in this important business by the same
 ‘ rules.

‘ Those already mention’d are of universal
 ‘ use, and in the coarsest kinds of flax necessary
 ‘ to be observ’d: in finer kinds, proportion-
 ‘ ably more is requisite, neater instruments, bet-
 ‘ ter skill, and greater nicety.

‘ Accordingly the Dutch flax-dresser pro-
 ‘ vides himself with different kinds of heckles:
 ‘ for his most valuable flax with four, each in a
 ‘ regular progression finer than the other: the
 ‘ last has teeth as small as the smallest needle,
 ‘ neatly wrought and rang’d very close toge-
 ‘ ther. These heckles are not trusted indiffe-
 ‘ rently with every heckler: even in that coun-
 ‘ try, where the art is arrived to great perfec-
 ‘ tion, few have skill to direct an instrument of
 ‘ so nice and curious management, as the best
 ‘ and finest heckle. Every heckler, according to

his proficiency, has an instrument of a different set, and is admitted to the finer sets only as she improves.

When the work begins—four hecklers are plac'd at the same bench, and the flax deliver'd in small parcels to the worst artist at the bench, who draws it thro' the coarsest heckles; the second heckler receives it from the first, and hands it forward to the third, when it has undergone a second operation under her; the third in the same manner delivers it in succession to the fourth, who compleats what the three former hecklers had begun, and concludes the operation.

In the course of this whole process, 'tis curious to observe with what tenderness and care the flax is handled; at first an inch, very little more at any time, is laid upon the heckles easily and lightly—drawn thro' with apparent caution, tenderly and slowly—rais'd off the teeth, upon the first resistance—brush'd carefully, then tried a second time, perhaps a third, till it comes freely and uninjur'd thro' the heckles.

The success answers the nicety of the performance, and one of those skilful hecklers saves abundantly more in flax, the finest and most valuable flax, which a clumsier hand would waste, than the equivalent of her day's

' hire. I will add, how surprising soever it may
 ' seem, that this excessive care retards the ope-
 ' ration very little. 'Tis almost incredible how
 ' much flax goes thro' the heckles in a day, in
 ' this tender cautious manner: regularity and
 ' constancy supply the place of unruly and de-
 ' structive haste, and the work proceeds lei-
 ' surely indeed, but not slowly.

' From the heckles, according to its staple
 ' the flax is made up in separate bundles, neatly
 ' twisted and exactly weigh'd. The finer bun-
 ' dles are lap'd up in paper, and the whole laid
 ' up for the use of the merchant or the manu-
 ' facturer: each according to his wants is sup-
 ' plied at his call and without trouble; and in
 ' an instant may provide himself from the high-
 ' est staple to the lowest.

' After so many letters, 'tis time, Gentlemen,
 ' to make room for other correspondents, or
 ' for your own instructions: I have now gone
 ' thro' my task, which has grown under my
 ' pen, to a much greater size than I at first
 ' imagin'd. However, if this attempt to serve
 ' my country is received with approbation, and
 ' attended with success, I am more than re-
 ' warded for my trouble.

' I could wish you would give me leave to
 ' conclude these Letters by expressing, in a pub-
 ' lic manner, my own sense, and that which

WEEKLY OBSERVATIONS. 267

'every lover of his country entertains of the
'Society: but as I have had occasion to ob-
'serve that you conceal the praises of your
'correspondents with as much care, as you en-
'deavour to deserve them, I shall barely sub-
'scribe myself,

Yours, &c.

R. M.

N^o XLIV. *Tuesday, February 7th, 1738.*

WE have been frequently solicited, while our
correspondent's letters upon flax-hus-
bandry and flax-dressing employ'd the reader,
to prepare an abstract of them: several gentle-
men of the best sense concurred in thinking,
that the bare directions independently of the
arguments and illustrations, by which they are
so happily and ingeniously supported, were bet-
ter fitted for the use of the farmer, and the ma-
nufacturer, might be dispos'd into more hands,
and become in a shorter time universal rules of
practice. They observe that many of our people
are not capable of conviction from any other
source than example and authority, and that to
them, nothing was requisite besides a clear
system of plain short rules recommended by
the example of the Dutch, and enforc'd by the
approbation and authority of better judges, who

from a curious perusal of the letters, had satisfied themselves of their expediency, in a different and more regular method.

In compliance with so many solicitations, and encourag'd by the hopes of being serviceable to the meaner sort, who ought to be the peculiar object of our care, because they particularly want it, we have accordingly drawn up the following abstract of directions which begins, as the letters, with the culture, and ends, as they do, with the dressing of the flax.

Strong, moist and clayey loams are the best land for flax; they yield great crops, particularly of seed, which in the present state of the linen manufacture of this kingdom, ought to be first considered: light lands afford fine flax indeed, but in small quantities, little seed, and that indifferent.

When flax-ground requires manures, those should be preferr'd which throw up the least weeds; of this kind are among others marle, lime, and sea-wreck.

Upon the same account ley is the fittest land for flax, which succeeds best always on fresh grounds provided they are till'd sufficiently.

These ought to be broken up in spring, that they may receive the benefit of the next summer's fallowing, as well as that of the succeeding winter: three ploughings will be requisite to

WEEKLY OBSERVATIONS. 269

bring them into proper tilth, and if more are bestowed upon them, the farmer won't repent his labour.

In the second ploughing, at the approach of winter, the ridges may be well thrown up high and sharp, to turn off immoderate rains.—But, in that ploughing which immediately preceeds the sowing, they must be laid as flat as possible, and much broader than for other crops.

The choice of seed is of great importance, and the thickest, oylieft and heaviest is the best; changing it from any soil to any other keeps it from degenerating; from lighter soils to heavier, considerably improves it: constantly sown on the same ground, it fails in a few years.

The true time for sowing is in March, the first good season in that month.

Even sowing is of great importance, and best attain'd when the seedsman goes up the ridge in a strait line, and delivers the seed with his right hand, and then returns in the same path, and throws it with the left.

Four bushels is the full allowance to the Irish acre, if you sow much thicker your ground will afford you little seed, if much thinner your flax will probably be coarse and stubborn.

Weeding can be spar'd but seldom: few crops are clean without it, and no flax crop will be a

good one, which is not at the same time a clean one. You may weed flax when it is two inches high, and you may defer it without danger till 'tis five, sitting on it will not injure it, but treading will destroy it.

By the latter end of June, or the beginning of July, flax sown in March will probably be ripe. A ripe crop inclines to a bright yellow, and the seed upon tryal will be found firm and full, and of a lively brown. 'Tis then time to pull your flax, except it be design'd for the finest kind of yarn: in that case it may stand a little longer, till the seed of some boles begins to shed; for the ripest flax works always best in the Dutch method, and turns out finest from the mills.

To make your flax, lay it by handfuls on the ground in little heaps a foot and a half high; and turn the heads of every handful to the South, to receive all the action of the sun. In eighteen or twenty days it may be bundled for carriage, and drawn home.

There it must be laid safely and under cover; 'tis a needless trouble and an unnecessary charge to stack it. The flax-dresser should set about it in all haste, to prevent the loss of the next and the best season.

To these approved instructions to the farmer, we shall add the following directions taken,

WEEKLY OBSERVATIONS. 271

each of them, out of a letter sent to this Society, by correspondents who were pleas'd to conceal their names.

“ As it is agreed that the lightest loams, and
“ the thickest crop afford the finest flax, it may
“ be of use to let the farmer know how he may
“ save such crops from lodging as they generally do. The method is a little expensive,
“ but if it answers, it will quit cost very well.
“ When the flax is in the ground, divide your
“ field into equal squares, the sides of which
“ may be four or five feet long, and at each
“ angle thrust a forked stick steady in the
“ ground: when your flax is some inches high,
“ lay from stick to stick a light cross pole, and
“ this will support the flax, and hinder it from
“ lodging. Some use ropes instead of poles, but
“ they yield too much, and answer but imperfectly.”

The gentleman concludes by assuring the Society that this method is in common use abroad: however we leave it to experience, to set a value on it, and shall wait till then to encourage the farmer to pursue it.

The second direction wants less time to recommend itself, and may probably be more readily complied with.

“ High winds are so common in this country
“ that there is reason to apprehend that the

" Dutch method of laying your flax loose upon
 " the ground, would be attended with consi-
 " derable inconveniencies, I believe the method
 " I pursue is safer: I gently tye each handful
 " as close as may be to the heads, and then
 " spreading out the ends, set it upright on the
 " ground: three or four of these together make
 " one stook, and into such small stooks I divide
 " all the flax I have. They dry soon, because
 " the wind has free access to the stalks, as the
 " sun has to the heads, and the rain cannot
 " lodge in any quantity upon them."

The directions to the flax-dresser will be
 found in the next paper. M.

N^o XLV. *Tuesday, February the 14th, 1738.*

IN the following directions to the flax-dres-
 ser, we suppose that he is properly provided
 with conveniencies of every kind, large ponds
 of standing water, capacious barns, stanch gra-
 naries, good working-rooms, ovens, fining-
 mills, and instruments such as our correspon-
 dent has describ'd; they must otherwise have
 been as voluminous almost as the original in-
 structions, and a transcript of them, rather than
 an abstract.

'Tis of importance to the flax-dresser, to

buy his flax betimes, directly from the field, and early in July, that he may have sufficient leisure to dress it before winter.

Rippling comes next. Two men may work at every instrument by fixing it upon a bench, that one may sit at either end. Let them take small handfuls at a time, and draw the flax thro' the ripple without violence. Two women to every bench are necessary to hand the flax in bundles to the ripplers, to receive it from them again, to sort it according to its several degrees of length, strength, ripeness, fineness, and to tye it loosely in little sheaves.

After rippling, the seed must be carried to the granaries, and the flax laid down to water; if possible dispose of the whole into your ponds together; the summer which draws hastily towards an end, is your fittest season, and should be husbanded with care; however, let nothing tempt you to use bog-holes or running waters, 'tis better to be delay'd to the next season, than discolour or damage all your flax.

Cover your flax to keep it down with the slutch or mire at the bottom of your ponds, or till that be gather'd in sufficient quantities, with clay, rushes, fern or timber. From four to twelve or thirteen days is the time requisite for watering. After the fourth examine your flax daily, and be particularly careful not to let it

lie too long : 'tis a mistake on the safer side to draw it off the soonest.

In grassing, the shortest grass should be prefer'd. Dry sand-banks do well; on either the flax must be turned every second day, and generally lies from a fortnight to three weeks.

To dry your flax, heat your oven thoroughly, then let it cool till a man can stand in it without uneasiness, fill it over night, and your flax will be ready for the break next morning. The dirt and straws scutch'd out of the flax in one day, will heat the oven for the next.

When you break your flax, take sheaf by sheaf out of the oven as you use it: it comes crisp under the engine, works better and more easily. 'Tis an error to lay the flax, as we do, as far as may be from the joint; the nearer it is plac'd to the centre of motion in the break, the more readily it splits, and the less damage it receives.

In scutching chuse the broad round scutch, the square and narrow one in use among us cuts and destroys the flax.

By the time the flax is scutcht, and about the middle of October, 'twill be time to thresh the feed.

This may be done by driving horses backwards and forwards on the boles, or by drawing

over them a heavy rolling-stone upon a smooth hard floor.

Cleaning it requires more nicety ; to do it thoroughly it must first go through the winnow, which separates it from the boles : thro' the riddle next to take out straws, stones, and larger dirt : then successively thro' two different sieves, the first bor'd with oval holes to let thro' the seed, and nothing else of greater bulk, the second closer to retain the seed, and afford a passage to all smaller bodies : and lastly thro' the screen or wire harp which frees it from all dust.

When the flax-dresser has thus clean'd his seed, he should return to his flax, and put it thro' the fining mills. The wheel in these, turns alternately from right to left, and from left to right, twice each way, and according to the number of these double turns the flax comes out the finer, the smoother, and the softer ; fourscore such turns is the most that any flax requires, and probably as much as it will bear.

In heckling, women and children should be employ'd from choice. They work with greater gentleness than men, and care and tenderness are the main excellencies in this business. For the best flax, four sets of heckles will be requisite, each of them of a different fineness. Thro' these it may be drawn successively, and every time with proportionable caution : the last whose teeth is

like the finest needles, requires the utmost skill, and should be trusted with few hands.

These directions, if they answer no other purpose, will at least be an useful index to our correspondents letters.— We hope indeed a farther use from them ; but were it otherwise, as they have been drawn up in compliance with the opinion of many gentlemen, we shall think our trouble well bestowed in an attempt to oblige them.

The following letter will conclude this paper properly, and we shall give it to the reader without alteration or apology.

‘ It is but a small mite I have to offer to your
 ‘ approbation, but I am loth it should be lost
 ‘ or buried without imparting, having seen the
 ‘ good effects of it. It is an invention of one
 ‘ Rigby, in the service of the Right Hon. the
 ‘ Lord St. George, in his factory in Connaught.
 ‘ After rippling the flax he sent the boles to
 ‘ the mill in sacks, ordering the mill-stones to
 ‘ be set as usual for making groates, then ground
 ‘ the boles, and found it hurt not the seed to
 ‘ any value, but left the grist fit for the win-
 ‘ nowing, by which means in a few days were
 ‘ saved upwards of twelve hogsheds of good
 ‘ seed, which must have taken long time and
 ‘ many hands to accomplish other ways. The
 ‘ mill-stones may be set at discretion to grind as

WEEKLY OBSERVATIONS. 277

'fine as you think fit, but so as not too much
'to damage the seed. If this seem worthy your
'notice and publishing, I hope the next time I
'trouble you, shall be with something more
'material, and I shall take it an honour to be
'at your command.' A. B.

P. S. The boles are supposed to be dry. M.

N^o XLVI. *Tuesday, February 21st. 1738.*

THE following letters upon brewing, contain many curious experiments, which have a natural tendency to make that an art, which till now has been more properly a knack, and directed by custom or by chance, rather than by principle.

GENTLEMEN,

'IT is the misfortune of our country, that
'for the most part, persons of all ranks
'live above their income. This evil is a fruitful
'source of many more; and if unrestrained,
'must inevitably end in general poverty and
'distress. It is foreign to my purpose, and it is
'grating in itself, to enter into a detail of the
'particulars. I wish, we had virtue enough to
'correct what we sensibly feel to be amiss. At
'present, I shall content myself with observing,

A a

' that for some time past, wine is become, al-
 ' most, the general entertainment of our peo-
 ' ple; and the care and improvement of malt-
 ' liquor, almost totally neglected. I apprehend,
 ' it would hardly check this growing evil, to
 ' observe, that ale and cyder seem by nature
 ' design'd for our climate, to supply the place
 ' of wine. That ale is more balsamic, freer from
 ' tartar, and less liable to pernicious adultera-
 ' tions.—Those reasonings, however just, would
 ' be in vain oppos'd to the force of prevailing
 ' fashion, which, as an ingenious writer ob-
 ' serves, creates appetites, governs nations, and
 ' supplies the place of reason in the vulgar of
 ' all ranks. Gentlemen of character and for-
 ' tune must redress this mischief. They must
 ' make it fashionable first, to brew, and then to
 ' drink good ale; countenance a particular in-
 ' spection into the brewing it, and condescend
 ' to make proper observations and inferences
 ' from the different appearances. Were this
 ' happy point once gained, the whole operation
 ' would soon be perform'd in a more rational
 ' manner, than it has been hitherto; we should
 ' soon begin to vie with our neighbours in the
 ' delicacy of our drink, and even contend with
 ' France in her wine.

' That I may contribute something to for-
 ' ward this laudable design, I take the liberty

'to send you some observations and experi-
 'ments upon the time requisite for boiling the
 'worts. The experiments have been several
 'times repeated with the same success; so that
 'I can assure you, they are accurate: the con-
 'sequences deduced from them, appear to
 'me to be just, but them I submit to your
 'candour and judgment; and if they be so
 'happy as to meet with approbation, I shall
 'think my pains abundantly rewarded.

'I take it for granted, every man who expects
 'to brew good drink, will be careful in the
 'choice of his hops and malt. I shall not spend
 'much time therefore, in enlarging on these ar-
 'ticles, but only obviate a vulgar prejudice,
 'which seems too universally to have prevail'd.
 'I mean that we are not to expect good drink
 'from Irish hops and Irish malt. I have tasted
 'excellent ale several years old, made of our
 'own barley, wherein no greater a proportion
 'of hops or malt were us'd, than is commonly
 'done in England for keeping drink: and I will
 'venture to affirm, this ale was no way inferi-
 'or to the English. I must confess, we are not
 'arrived to any great perfection in the culture
 'and management of hops; nevertheless, the
 'year 1736, gave us a sufficient proof that in a
 'good season we may be supply'd from among
 'ourselves with that valuable commodity. I as-

' fure you I know feveral inftances, where the I-
 ' rish hops, us'd in the fame proportion as the
 ' Pocket or Worcefter hop, gave the drink a high-
 ' er relifh, and preferved it full as well. But to il-
 ' luftrate this matter a little further, give me leave
 ' to obferve, that as the bitter of the hop is of a
 ' fixed nature, and will not evaporate by the heat
 ' of boyling water, it is eafy to determine the
 ' quantity of bitter in any given quantity of
 ' hops, by the quantity of extract and fixed falts
 ' produced from them. For this purpofe, I made
 ' feveral experiments on the Kentifh, Worcefter
 ' and Irifh hops of 1736. The Kentifh yielded
 ' the greateft proportion of fixed falts, and ex-
 ' tract: but the Irifh, an equal, and in feveral
 ' fpecimens a greater proportion of both, than
 ' the Worcefter, or Pocket.

' Tho' I do not defign, as I mention'd before,
 ' to enlarge on the qualities of malt and hops;
 ' I muft add a fecond obfervation, that in order
 ' to have good drink, it is alfo neceffary, the
 ' grain fhould be perfectly malted, and not us'd
 ' too foon. If it be imperfectly malted, the
 ' drink will acquire a raw tafte: and if it be frefh
 ' off the kiln, it retains an extraneous heat from
 ' the fire, which time only wears off. Befides,
 ' the wort made from fuch malt, requires a
 ' much longer time to break, than that does,
 ' which has been made fome months.

WEEKLY OBSERVATIONS. 281

‘ It is also of importance, to attend to the
 ‘ size of the copper, you make use of in brew-
 ‘ ing. The coppers of our publick brewers in
 ‘ Dublin, generally contain from thirty to sixty
 ‘ barrels, and require to be kept longer boiling,
 ‘ than those in private houses, which contain
 ‘ for the most part only from one to three. The
 ‘ quantity of fire used for these, is much great-
 ‘ er in proportion, than what the former require;
 ‘ and consequently the boiling, and evaporation
 ‘ are proportionably greater in the small, than in
 ‘ the larger ones; insomuch, that I have observed
 ‘ in one of the smaller size, an eighth part of the
 ‘ wort evaporated in three hours boiling, when
 ‘ in the same time, a twelfth or less was only
 ‘ lost in one of larger dimensions.

‘ Having premis’d these few particulars, I
 ‘ shall now endeavour from the nature of the
 ‘ hop and malt, to convince the readers, that
 ‘ long boiling is not the most effectual way of
 ‘ obtaining and combining their virtues.

‘ The hop is a bitter aromatic, exhibiting a
 ‘ sensible acrimony to the taste, and endued be-
 ‘ sides with an austerity or roughness.

‘ This last quality is not commonly observ’d;
 ‘ but evidently manifests itself, in a long de-
 ‘ coction of hops in fair water, so as almost to
 ‘ equal the roughness of allum.

‘ The aromatic part of the hop, on the con-

'trary, is volatile, and, as I have frequently experienced, rises and comes over, in a whitish water, by the mild heat of the cold still.

'The grateful bitter is of a middle nature, semi-volatile, requiring more fire to extract it, than the aromatic part, and less than the austere, astringent one.

'Hence, tho' these several qualities reside together in the hop, they are capable of being separated, and the aromatic flavour and grateful bitter may be had alone, without the astringent nauseous one.

'To obtain this, should be the brewer's aim: and this can no otherwise be done, than by boiling the wort much less than has hitherto been usual. For, as the virtues of the hop reside in the squamæ or its subtile and almost transparent leaves, the yellow dust which adheres to them, and the fine membrane which contains the seed, all parts of a very nice and delicate texture, 'tis plain, that upon too long decoction, they will be all extracted, and the strong, astringent roughness, together with the rest.

'Some, indeed, support the practice of long boiling, by ascribing some useful qualities to the seed itself, which they suppose require more of the action of the fire. But this is entirely a mistake; the seed itself being almost, if not

WEEKLY OBSERVATIONS. 283

‘altogether, void of all flavour and all bitter-
‘ness.

‘What I have here affirm’d of the nature of
‘the hop, is the result of many and repeated ex-
‘periments. I always found, that the aroma-
‘tic flavour of the hop, was extracted by the
‘gentle heat of infusion in warm water, that
‘upon a quarter of an hour’s boiling, the plea-
‘sant bitterness and acrimony came next, and
‘that when the decoction was continued above
‘an hour, the nauseous, terrene and austere
‘roughness shew’d it self.

‘I shall add, that when the hop remained a-
‘bove an hour in decoction, its grateful smell
‘and flavour were entirely lost; the aromatic
‘parts evaporated, and what remained, was bit-
‘ter and austere, nauseous and muddy. Longer
‘boiling produc’d proportionable effects of the
‘same kind, and afforded a mere bitter, still
‘more nauseous than the former.

‘This I attribute to the stalks, whose woody
‘contexture, however stubborn, yields at last to
‘continued decoction, and impregnates the wa-
‘ter with that intense bitter, and nauseous harsh-
‘ness. ’Tis true, that little of this austere harsh-
‘ness betrays it self in chewing the hop-stalks;
‘they appear almost insipid to the palate; but,
‘upon boiling them alone for three hours in

' common water, I found all the harshness I a-
' scribe unto them.

' The result of the observations in this letter
' is plainly this; that long boiling of the hop is
' a pernicious practice—produceth with great
' art and labour an inert, austere and nauseous
' bitter in the place of what indulgent nature
' had designed us—a pleasant active aromatic
' one.'

I am, &c.

R—y W.

N^O XLVII. *Tuesday, February 28th, 1738.*

GENTLEMEN,

' **W**HAT I advanced in my last letter con-
' cerning the power of infusion, is not
' peculiar to the hop alone; but is observable
' in other vegetables. And as this is a matter of
' some importance in the article of brewing, I
' hope it will not be thought superfluous to il-
' lustrate this a little further.

' It is almost needless to mention that the
' virtues, the smell, and the flavour of tea, are
' best obtain'd by mere infusion. It is also cer-
' tain, that the syrups of roses and violets, which
' consist of volatile and fixed parts, are best pre-
' pared by infusion only. But the power there-

' of appears no where plainer, than in the tan-
 ' ners ouze, which is nothing else than an infu-
 ' sion of oak-bark in cold water. To these
 ' particulars, give me leave to add, that even
 ' substances of a more close and compacted na-
 ' ture, which yield their virtues in decoction on-
 ' ly, are found to part with them more quick-
 ' ly and more effectually, if they have undergone
 ' a previous infusion, as is evident in *lignum vi-*
 ' *tae*, and several others. And to name no more,
 ' even animal bodies are very differently affect-
 ' ed by mild and intense heat. Thus if flesh be
 ' put into water boiling hot, and continue some
 ' time in it, the juice or gravy will be preserv'd
 ' in it: whereas, on the other hand, if it be put
 ' into cold water at first, by the subsequent gra-
 ' dual warmth, the gravy is drawn out into the
 ' water, and affords good broth, but sapless meat.
 ' These instances are sufficient to illustrate what
 ' I advanc'd in my former letters, since they
 ' plainly tend to prove that if the hop, a vege-
 ' table of a tender delicate texture, be sufficient-
 ' ly relaxed by a previous infusion, a short de-
 ' coction afterwards, will most effectually ex-
 ' tract its virtues.

' I shall now endeavour to shew that long
 ' boiling is as destructive of the virtues of the
 ' malt, as it is of those of the hop; and in or-
 ' der to this I must observe, that in all vege-

' tables, which resemble one another in the com-
 ' position of their parts, the same management
 ' is requisite to extract their virtues. Thus, the
 ' virtues of the mealy roots of marsh mallows,
 ' and seeds of quinces, faenugreck, and others,
 ' are best obtain'd, by an infusion of warm wa-
 ' ter on hot embers, continued for some time,
 ' and a gentle simmering afterwards. In like
 ' manner, the virtues of malt are not extracted
 ' by decoction at all, but by mere infusion on-
 ' ly, and that in water below the degree of boil-
 ' ing. For should the water be pour'd boiling
 ' hot upon the malt, every brewer knows it
 ' would coagulate the meal, and in his language,
 ' hinder it from spending it self.

' Having premised thus much, let us briefly
 ' consider the nature of malt.—Malt is the mealy
 ' parts of barley, attenuated and volatiliz'd, first
 ' by a beginning vegetation, and afterwards by
 ' the active force of the fire on the kiln, and
 ' thus prepared evidently consists of two distinct
 ' parts: the one a spirituous, the other ter-
 ' rene. It is this spirituous part which yields
 ' that mild and grateful fragrancy, when the
 ' malt is mashing, or the wort a boiling; and,
 ' in the language of the chymist is call'd spiritus
 ' rector; being the seat of the smell and taste
 ' of all vegetables. This spirit is entirely distinct
 ' from that, which fermentation produces after-

wards, and is of absolute importance to the ale. For should this fragrant, active spirit be dissipated, or fly off by too long infusion or decoction, the ale is robb'd of all its sprightly parts, and remains an inert, vapid liquor. Of this the brewer seems appriz'd, and therefore while the malt is mashing, takes prudent measures to prevent it. This he does by capping it, as it is called, in the mashing tub with a little dry malt and sacks thrown over it. But after mashing, his care in this particular unhappily ends, and that long decoction he afterwards uses to combine the virtues of the hop with this infusion of the malt, not only impregnates his ale-wort with the nauseous and austere bitter of the hop, but also dissipates this active, balsamic spirit of the malt in a greater or less degree. But this is not the only mischief which arises from a long continued boiling of the worts.—Another, and a very unhappy consequence attends it, namely, that the thinner and more fluid parts are dissipated; and if the decoction be over long protracted, the ale-wort will be reduc'd at last to a viscid liquor, almost as tough as birdlime, to which consistence, it more or less approaches, according to the degree and length of boiling. If it be only boiled until the wort be properly impregnated with the virtues of the hop, which, by the way is

' the only valuable end of boiling ; you have a
 ' light, penetrating, diluting, diuretic liquor ;
 ' which has imbib'd and does retain the smell
 ' and flavour of hop and malt. — Whereas should
 ' this decoction be long persisted in, your ale-
 ' wort becomes glutinous and viscid, clogging
 ' to the stomach, unfit for the purposes of drink,
 ' and greatly tending to produce obstructions
 ' and diseases in the human body.

' Before I leave the article of malt, allow me
 ' to take notice of another pernicious practice
 ' in brewing, which will naturally lead me to
 ' consider the terrestrial part of malt, I just now
 ' mentioned : the practice I mean, is the infu-
 ' sion, or mashing it too long. Here let me ob-
 ' serve, that the first runnings from this infusion,
 ' are always the most spirituous and fragrant, the
 ' most balsamic and sweet, the least dispos'd to
 ' acidity, and fittest for keeping. What thus
 ' runs off, is call'd the ale or beer-wort. The
 ' next infusion is for small beer, which is made
 ' by pouring fresh water on the grains ; what is
 ' thence drawn off, is robb'd of much of its grate-
 ' ful spirit, smell and flavour, and is greatly dis-
 ' pos'd to acidity. The third and last infusion,
 ' is of cold-water, pour'd on the grains exhaust-
 ' ed by the two preceeding infusions, and is
 ' call'd taplash. It is of a wheyish colour, having
 ' lost entirely the bright amber tincture, the

WEEKLY OBSERVATIONS. 289

grateful smell and flavour, with all the balsamic sweetness of the first runnings, has an ill taste from the grains, and is commonly sourish as it runs off.

Of the same nature, are the appearances which manifest themselves, in the making of cyder and wine. The juice, which distills of its own accord from the ground apples, is by much the richest; but that which is forc'd out by the last and hardest squeezings of the press, is weaker, rougher and worse tasted. If fresh water be pour'd on the remaining murc, it produces cyderkin, a liquor resembling cyder, as the small beer before mentioned resembles ale.

In like manner, what runs from the first pressing of the grape, is always the finest and most delicate: and the principal skill in making wine, consists in knowing when to draw off the juice from the skins, stones and stalks in the vat. The shorter time the juice is fermented with these, the sweeter and paler is the wine; but if this fermentation be continued long, the wine becomes dryer, higher coloured, and more austere. This is so true, that some wines by staying long on the murc, never lose the harsh taste of the grape stone, and become as red as ox blood.

From these particulars, it manifestly follows that the mashing or infusion of the malt, pro-

'tracted too long, must greatly injure the
 'worts, much of the balsamic spirit will fly off,
 'a tendency to acidity from the terrestrial fe-
 'culent parts of the grains be contracted, and if
 'it be done in summer the ale will certainly turn
 'sour. In what I now advance, I have not only
 'reason, but experience on my side, and I can
 'venture to affirm, that strong October, as well
 'as middling table beer made of fresh malt and
 'fresh hops, will be sufficiently infus'd, if it be
 'left to run in two hours.

'Upon the whole, if long mashing be attend-
 'ed with such inconveniencies to the worts,
 'and long decoction afterwards, instead of com-
 'bining the valuable and active parts of hop and
 'malt, in reality dissipates them, there needs no
 'other arguments to explode the method of
 'brewing, so long established here, and to re-
 'commend a practice not chargeable with such
 'pernicious effects. I have not room to enlarge
 'upon that head in this letter, and therefore
 'shall refer the consideration of it to my next.
 'In the mean time, give me leave, briefly to con-
 'sider the nature and effects of our common
 'small-beer, and in its room to recommend the
 'entire guile small-beer, which is made of fresh
 'malt and fresh hops.

'Our common small-beer, which will not
 'keep a month, is made by an infusion of the

WEEKLY OBSERVATIONS. 291

grains and hop exhausted in the preparation of the ale-wort, or at least considerably deprived of their balsamic, spirituous and aromatic parts, and thoroughly impregnated with their gross, terrestrial, austere, and nauseous one. Parts of such a nature receiv'd into the body, must gradually create viscidities and obstructions, and prove greatly detrimental to tender constitutions and weak stomachs. On the other hand, the entire guile small-beer, is chargeable with none of these inconveniencies, and is undoubtedly the most wholesome and useful of malt-drink—if well prepared, it will keep sound a twelvemonth. It retains the more spirituous aromatic parts above describ'd, and sufficiently answers the end of diluting our more solid food; it carries no viscidities into the blood, and by a gentle stimulus promotes the necessary contractions of the vessels. In a word, it is enrich'd with all the valuable properties of the hop and malt, and is as grateful as it is wholesome.

I am, &c.

R—y W.

GENTLEMEN,

FROM what I have said in my former letters, I flatter myself, your readers are convinc'd, that a long continued mashing of the malt, and a tedious boiling of the hops and wort are so far from being necessary to obtain the virtues of either, that they naturally tend to rob the worts of the aromatic and balsamic qualities of both. I have chosen to enlarge perhaps too much upon these articles, because prejudices, supported by tradition, and established by practice, are not easily remov'd; and yet unless we can succeed herein, I fear we are not like to arrive to any great perfection in our malt-liquor.

It were to be wished, we had unerring rules to guide us in our brewing it: but so many circumstances are necessary to be attended to, and a miscarriage in any one of them is so apt to spoil the whole, that it is not easy to point out a method which will always answer. Were there nothing else, the qualities of hops and malt differ so much at different times, that it is impossible to fix a standard for making any drink, which will not neces-

'sarily admit of great variations. Sometimes
 'this difference appears in the hops, insomuch
 'that in one season five pounds of hops shall
 'impregnate the wort with its bitter aromatic
 'qualities as strongly as seven pounds shall do
 'in another. There is also a remarkable dif-
 'ference arises from the soil where they were
 'rais'd: thus we find a pound and a half of
 'Kentish hops is nearly equal to two pounds
 'of those which grow in Worcestershire; to
 'which let me add, that the bitter in the Ken-
 'tish hop is wrapt up in a more tenacious oily-
 'ness than the Worcester; and for that reason
 'the former is always to be preferr'd for drink
 'which is design'd for keeping: the Worcester
 'answers well enough in ale that is usually kept
 'for a month or six weeks. But further, malt
 'which is made of barley requires a greater
 'proportion of hops than that which is made
 'of bear: and pale, but well-dry'd malt needs
 'a larger share than what is high dry'd. Need
 'I add, that what is brew'd in summer must
 'be better hop'd than what is brew'd in winter?

'Considerable varieties must also arise from
 'the diversity of the grain; whether, for ex-
 'ample, it be bear or barley; and also, from
 'the greater or lesser degree of mealiness in
 'each, as well as the perfection or imperfection
 'in malting. For these reasons, I believe you

' will not expect from me a perfect receipt for
 ' brewing. Gentlemen's palates vary much, and
 ' what to one would be sufficiently strong and
 ' agreeably bitter, to another would appear both
 ' weak and scarcely bitter.—Nevertheless, that
 ' I may not seem wholly wanting on this head,
 ' I shall venture to send you the several pro-
 ' portions I have frequently, and I think suc-
 ' cessfully, try'd in brewing three sorts of malt-
 ' drink, October or beer, ale, and entire guile
 ' small-beer; and afterwards subjoin such di-
 ' rections as appear necessary to be observ'd in
 ' all, as well as those which particularly relate
 ' to the several kinds.

' October, or beer, so call'd, because in that
 ' month, the best of that kind of drink is always
 ' made; I have prepared in the following man-
 ' ner;—from three barrels, or three barrels and
 ' a half, of the best barley malt, draw a barrel
 ' and a half of drink, to which, seven, eight or
 ' nine pounds of the best Kentish hops, must be
 ' added in the manner hereafter described. Ale,
 ' to be kept three weeks or a month, I have pre-
 ' pared in this manner. From a barrel and a half
 ' of the best barley malt, draw a barrel or
 ' barrel and a quarter of drink; and to this,
 ' put two pounds of the best Worcester hop;
 ' which, for drink like this, intended for a speedy
 ' consumption, will abundantly suffice. But if

WEEKLY OBSERVATIONS. 295

the ale is design'd for keeping two or three months, add half a pound more of hops to the same proportion of malt and wort.

Entire guile small-beer may properly be divided into three classes; as small October, which may be kept a twelve-month; middling beer, which may be kept two months; and small-beer, which is to be drank in three weeks.

The first, which is small October, is at no time so properly to be made as in October, and is done as follows: from a barrel and half of the best beer malt, draw a barrel and three quarters of drink, to which put three pounds of the best Kentish hops.

For the second or middling small-beer: from a barrel and half of the best barley malt, draw two barrels and three quarters of drink, and put two pounds and a quarter of hops.

For the third or smallest kind: from a barrel and a half of the best bear malt, draw two barrels and a half of drink, and put two pounds of hops.

Before I proceed, give me leave to observe, that the reason I have mention'd bear and barley malt promiscuously, is purely because the several kinds of drink now mentioned, I have known to be made in that way; and a little observation will instruct the brewer to substitute one in the place of the other, in proper

' proportions, when he pleases to vary them.

' I shall now take leave to add some general
' instructions, which may be apply'd to the se-
' veral kinds of drink I have at present taken
' notice of.

' Rain water is preferable to any other for
' brewing; and must be reduc'd to different
' degrees of heat, tho' still below the degree of
' boiling, according to the various qualities of
' the grain. In water prepared for brewing, the
' greater degree of heat is, in the brewer's lan-
' guage, call'd a sharper liquor; the less is call'd
' a slacker; and the justly adapting the proper
' degree of heat, to the different qualities of the
' grain, is the single article upon which depends
' the compleat extraction of the virtues of the
' malt in general. It may be affirm'd, that a
' slacker liquor most effectually extracts the
' mealy parts of malt, and makes the tincture
' richer, tho' less transparent. But to be more
' particular: high dry'd malt, and new malt re-
' quire slacker liquor, than what is pale and
' longer made. Fine ground malt requires a
' slacker liquor, than what is coarser and more
' grossly ground; and barley, which is more
' mealy, requires a slacker liquor than bear
' malt. But whether bear or barley malt be
' us'd, care ought always to be had, that it be
' such as has been made some months, and

ground about twelve hours before you mash,
for then it yields its parts most perfectly.

'I have already observ'd, that great care is
'requisite, that the water us'd in mashing, be
'neither too slack or sharp; when that is well
'adjusted, there remains another circumstance
'which must nicely be attended to. I mean, the
'time this mashing or infusion ought to last.
'In general, I am of opinion two hours infu-
'sion will suffice for any wort; for should it
'be continued longer, especially in summer
'time, or in pale well dry'd malt, which yields
'its virtues sooner than the high-dry'd; I make
'no doubt, the drink would quickly acquire an
'ill taste from the grains, and soon turn sour
'afterwards.

'The infusing and boiling of the hop is the
'next article to be considered: what I have said
'before on this subject makes it needless to en-
'large, and therefore I shall just observe, that
'the hops must be well rubb'd, and if clear'd
'from the stalks they will be better; thus pre-
'par'd, put them into the underback, and at
'the proper time, let the wort run on them in a
'small stream, by which means they will be gra-
'dually opening.—After the wort is all run off
'into the underback, let the hops continue to
'soak in it about half an hour. And thus by
'the moderate heat of the wort, agreeably to

' what I have advanc'd concerning the power of
 ' infusion, the hops will be relaxed and opened,
 ' and communicate a considerable share of their
 ' bitter aromatic virtue. This will also dispose
 ' them more readily to yield to the power of
 ' the subsequent boiling. In order to this, the
 ' wort thus infus'd, and the hops must be put
 ' together into the copper, and during the time
 ' the boiling lasts, the copper ought to be kept
 ' close cover'd; by which, much of the volatile
 ' parts will be preserv'd, whilst the acrimonious
 ' bitter is extracted.

' When this is done, your next care is to at-
 ' tend to the time of boiling; and from the rea-
 ' son I advanc'd already, and some experiments,
 ' I shall give hereafter, I may venture to affirm,
 ' that it is not any way essential to its goodness,
 ' that any kind of malt-drink should boil above
 ' an hour in small coppers, provided the cir-
 ' cumstances I have mention'd be attended to.
 ' Nay what is more, I am thoroughly convin-
 ' ced, the goodness of some particular sorts of
 ' drink depends upon its being boiled a shorter
 ' time than I have limited. When the wort
 ' has boil'd its time, do not, as is usually done,
 ' strain it directly from the hops, but let them
 ' remain in it, as long as the wort continues
 ' warm and thin enough for straining. And
 ' thus, the first and second infusion, with the

intermediate decoction, will thoroughly saturate your worts with all the virtues of the hop.

The directions I have now laid down are applicable to the several sorts of malt drink I just now mention'd. Besides these, it is necessary, I should add some other concerning the different management which each particular kind requires.—But as I fear I have already exceeded the bounds of your paper, I shall refer them, and some other observations, to my next.

I am, &c.

R—y W.

N^o XLIX. *Tuesday, March 14, 1738.*

GENTLEMEN,

IN my last letter, I offer'd such instructions as regarded brewing in general, and shall now add some hints concerning the management of each particular sort.

The wort design'd for good October is fully saturated with the meal of the richest best dry'd malt. Hereby it acquires a greater specific gravity than ale-wort, deposits a greater sediment, and commonly requires, at least in larger vessels, near twelve months to fine. From hence it plainly follows that boiling it

' in small coppers for two or three hours suc-
 ' cessively must dissipate the finer parts, and by
 ' degrees reduce it to the consistence of mum-
 ' and of course be more prejudicial to this, than
 ' any kind of drink.

' But as it has hitherto been the receiv'd opi-
 ' nion, that this October or keeping drink,
 ' should be the longest boil'd of any, allow me
 ' to illustrate this matter a little further.—E-
 ' very body knows milk is a more viscid tenaci-
 ' ous fluid than pure water, and yet it is de-
 ' monstrable that it boils much sooner, and in
 ' boiling wastes much faster than water. The
 ' reason possibly may be this, that the particles
 ' of fire, are more closely wrapt up in the thick-
 ' er consistence or viscosity of the former than
 ' the latter, and thereby cause a more violent
 ' agitation, and consequent evaporation; but
 ' be this the cause or not, it is undoubtedly true
 ' in fact, that in boiling the same quantity of
 ' strong and small wort with the same degree of
 ' heat, the strong October wort is by experi-
 ' ence found to waste both more and faster
 ' than the small beer wort; and therefore, un-
 ' less we would reduce it to the consistence of
 ' a syrup, it ought to be boil'd a shorter time;
 ' but that this matter may not want a sanction
 ' from experience, I can assure your readers,
 ' that in those parts of England, where beer is

in the greatest repute, the most curious never
 boil this kind of wort above half an hour, and
 several don't exceed fifteen or twenty minutes.
 I have only to add upon this article of Octo-
 ber, that no hops, but the Kentish, have hi-
 therto been found durable enough to preserve
 it a twelvemonth, before which time it is rare-
 ly us'd.

'It has been already hinted that the Wor-
 cester hop will be sufficiently strong for ale.
 —Let me only remark, that ale-wort need not
 generally boil above half an hour, in which
 time it will obtain a sufficient quantity of the
 bitter from the hop, and when it comes to be
 drank, recommend itself by its superior light-
 ness and flavour, far beyond what is boil'd
 two, three, and four hours.

'As to the entire guile small beer, I shall just
 observe, that the wort contains a larger pro-
 portion of water to its malt, than either beer
 or ale, and therefore is not in such immediate
 danger of being injur'd in its consistence by
 being over-boil'd. However, I am satisfied an
 hour's boiling will suffice for it; and this I
 know to be the practice of an eminent small
 beer brewer in London.

'I am sensible, what I have now advanc'd,
 about boiling the hop, is liable to a plausible

‘ objection, and therefore I shall distinctly consider it, and endeavour to remove it.

‘ The objection is this, that tho’ the hop has been boil’d in the common way for three or four hours, it shall nevertheless retain sufficient bitterness to impregnate the small beer of the same brewing: from whence it is inferred, that long boiling is absolutely requisite fully to extract the bitter of the hop.

‘ In answer to this, let me observe, that it has been prov’d by a former experiment, that the aromatic volatile part of the hop must fly off by this boiling, so that both ale and small beer must be depriv’d of that; and with regard to the acrimonious bitter, I shall now endeavour to shew, that if the small beer be impregnated with it, after the ale has boil’d so long, either there may have been an unnecessary waste of hops, by too large a quantity being used for the ale—Or, that the ale is depriv’d of such a proportion of the bitter as the small beer receives. In order to prove the first of these, give me leave to observe, that those who are conversant in dissolutions, know that a menstruum can receive only a determinate proportion of the impregnating or dissolvable matter.—When it is saturated with this, it will admit no more. Thus if you sufficiently saturate with salt a given quantity of water,

WEEKLY OBSERVATIONS. 303

‘you may add what portion more you please,
‘it remains untouched by the water, and falls
‘to the bottom. In like manner, a given quan-
‘tity of water will receive a certain proportion
‘of the bitter of the hop, and no more.

‘That I might be satisfied of this, I boil’d
‘two ounces of hops in ten quarts of water,
‘until I evaporated it into an extract. After-
‘wards I boiled the same quantity of the same
‘sort of hops in two quarts of water into
‘an extract also. And upon comparing the
‘quantities of both, I found I had one third
‘more of bitter extract from the ten quarts,
‘than from the two. In this experiment, I think
‘it appears that the pores of the bottle of wa-
‘ter, were not able to contain the quantity of
‘bitter communicable from the two ounces of
‘hops, and that consequently the remaining hop
‘would have embitter’d more fresh water. The
‘application of this unto the ale-wort is very
‘natural — for if the ale-wort be thoroughly
‘impregnated with the bitter of the hops, and
‘yet there be sufficient bitterness remaining in
‘them, to serve the next infusion for small beer,
‘it is evident, more hops were allotted to the
‘ale than were necessary for it. Or should this
‘not have been the case, and yet the small beer
‘prove sufficiently hopp’d, it may arise from
‘hence, that the ale-wort loses what the small

' beer gains, and this I am next to prove.

' For this purpose allow me to observe, that
' by a long immersion in the boiling wort, the
' hop is much expanded, and its pores dilated
' to a great degree; its leaves become in a great
' measure like a sponge, and reimbibe the imbit-
' ter'd liquor in which they are soak'd. This li-
' quor, which grows more viscid by the continued
' boiling adheres more closely to the hop, whose
' leaves grow visibly thicker, and by long conti-
' nuing in the wort, become at last surprizingly
' heavy. To determine this, I made the follow-
' ing experiment several times with the same
' success.

' I took two small bags, and put into each of
' them two drachms of hops, and suspended
' them in a copper of wort about to boil. After
' the wort had boil'd half an hour, I took out
' the bags and weigh'd their contents. Those
' of No. 1. weigh'd one ounce, four drachms and
' two scruples. Those of No. 2. weigh'd one
' ounce, six drachms and fourteen grains.

' After this I put them both into the same
' copper in their respective bags, and kept them
' suspended there until the wort had boil'd an
' hour and three quarters, and then I took them
' out again, and the contents of No. 1. weigh-
' ed an ounce, six drachms, and fourteen grains,
' and those of No. 2. weigh'd one ounce, six

‘ drachms, and two scruples. And if the decoction be still continued longer, the hop expands itself still more and grows still heavier in proportion.

‘ From this experiment it follows, that by long boiling the hops in the ale-wort, the wort is actually robb’d of part of its bitter—of as much at least, as the hop increases in weight by soaking in it, and this embitters the small beer, and what is full as bad, by degrees, the fine acrimonious bitter of the hop, as I observed before, is chang’d into a rough and nauseous one. From this experiment it appears further why, and under what circumstances, hops which have been us’d for ale, not only embitter the small beer, but sometimes also add to its strength. The reason is, part of the ale-wort adheres to the leaves of the hop, and is by them communicated to the small beer.

‘ Upon the whole, I hope, it does appear, that the objection I have now consider’d, if it proves any thing, proves no more than this, that when the small beer, which is made of hops and malt, that have been used for ale before, is sufficiently bitter; either there has been a waste of hops, or the ale is robb’d of so much of its bitter as the small beer gains.

‘ I should now consider the appearances in the boiling of the worts, which are common-

'ly receiv'd as sure tokens of its being finished,
'but the consideration of these, will furnish
'matter for another paper.'

I am, &c.

R—y W.



N^o. L.

Tuesday, March the 21st, 1738.

GENTLEMEN,

'I Am now to consider those appearances in
'the boiling of the worts, which are com-
'monly reputed certain signs that they have
'boil'd enough. These are generally reduc'd to
'two: the sinking of the hop, and the breaking
'of the worts. Before I enter upon the confi-
'deration of these, I shall just observe that some
'persons depend upon a third; they boil for a
'certain number of minutes, when these expire,
'they at once give over. It appears at first
'view, that this is a fallacious rule to judge by.
'—No regard is had to the qualities of either
'hop or malt; which, as I shall have occasion
'to shew by and by, require very different treat-
'ment; and when they are not attended to, it
'is more to be ascrib'd to chance than art, that
'any brewing proves successful.

'It has usually been taken for granted, that
'the hops have communicated all their virtue
'to the wort, when they subside or sink unto

the bottom, and that the boiling of the worts
 ought then to cease. But let it be observ-
 ed that this depends on different causes. If the
 hop be previously infus'd, in the manner I have
 before recommended, it will sink sooner, than
 if such management has not been us'd. Some-
 times I have observ'd them to sink in a quar-
 ter, and sometimes not under half an hour's
 boiling; and for any thing I have learn'd to the
 contrary, the hops, even after they have im-
 bib'd such a quantity of wort as makes them
 sink, may yet retain some virtues, they com-
 municate by longer boiling. This is certain;
 that the different dryness of the hop makes a
 remarkable difference in the time of its sinking,
 and communicating its virtues to the wort.
 For a dry hop is found to imbibe more mois-
 ture at sea, and to grow heavier than a green.
 And it is found in making infusions with green
 and dry herbs in warm water, that the green
 require a longer time to communicate their
 virtues than the dry; for the dry more strong-
 ly imbibe the water, and consequently impart
 their qualities sooner than the green. From
 hence I think it evident, that the dryer the
 hop, the sooner it will sink; and the greener
 it is, the longer it will remain suspended.
 From which, and from what I have before
 advanced, taken together, it follows, that this

‘ appearance in the boiling of the worts, can
 ‘ not be depended on as an unerring rule how
 ‘ long to continue, and when to finish. The
 ‘ guide only to be relied upon, must be a judi-
 ‘ cious taste, improv’d by observation and ex-
 ‘ perience. This will best determine, how long
 ‘ the bitter of the hop, continues to retain its
 ‘ grateful flavour: so long we may with safety
 ‘ boil, and we ought to boil no longer.

‘ What I have said may suffice for this ap-
 ‘ pearance in the hop; and the rather, that the
 ‘ other, viz. the breaking of the wort, will re-
 ‘ quire a more thorough explication, as it has
 ‘ been much talk’d of, and very little under-
 ‘ stood. This breaking or curdling of the wort
 ‘ is best discovered by taking up a little of it in
 ‘ a bowl, and exposing of it to the cold for two
 ‘ or three minutes. If it begins to break, you
 ‘ will find the liquor, which was transparent
 ‘ when put up into the copper, is become
 ‘ grumous and muddy. These grumes, by the
 ‘ continuance of the boiling, unite; and form-
 ‘ ing larger ones, sink down into the bottom
 ‘ of the vessel, and leave the liquor clear again.
 ‘ This is called a compleat breaking or separa-
 ‘ tion, and has been almost universally allowed
 ‘ for a certain sign, that the boiling is duly fi-
 ‘ nished, short of which, you ought not to stop;
 ‘ and beyond which it ought not to continue.

‘ I do allow, indeed, that the sooner this breaking does appear, the shorter time the boiling ought to last. Notwithstanding I am clearly of opinion, that for the making of good drink, it is neither necessary to wait for this breaking, nor to regard any thing else— but that the hops sufficiently communicate their virtues to the wort.

‘ I am well aware this position will startle many of your readers at first sight; but if they will impartially attend unto some facts and experiments, I shall now relate, and candidly examine them; I flatter my self, they will agree with me in what I have alledg’d, and plainly see that the breaking of the worts is so variable in it self, and in the circumstances which attend it, that it can never be allow’d a standard when the boiling is compleat.

‘ Let me then observe, that this breaking appears at very different times; from different circumstances in the grain, and in the degree of the heat of the water which is us’d. First as to the grain. In some malt it happens in half an hour, in others not before an hour and half. For instance, this breaking appears much sooner, and in larger flakes, in old malt than in new; nay, in malt fresh off the kiln, there will be scarce any breaking at all. In bear malt three quarters of a year old, I observ’d a com-

' pleat separation in three quarters of an hour,
 ' which in barley malt ten days old did not hap-
 ' pen in less than an hour; and yet barley malt
 ' is observ'd *caeteris paribus*, to break sooner, in
 ' larger flakes, and in a greater quantity than
 ' beer-malt. But again—the larger the curds
 ' are, the sooner is the subsiding or sinking to
 ' the bottom observ'd; now slack dry'd malt ex-
 ' hibits its curds sooner and larger than the high
 ' dry'd; and grossly ground malt exhibits larg-
 ' er curds, whilst what is finer ground produces
 ' smaller. Nay, even the soil it self is found to
 ' diversify the time of breaking, for the barley
 ' from chalks and gravels, is found to break soon-
 ' er, than barley from tough clays. Thus you
 ' see how many circumstances in the grain, con-
 ' cur to vary the time of breaking. To these, let
 ' me add some others, which arise from the dif-
 ' ferent degrees of heat the water is endued with.

' A flacker liquor is found to exhibit the curds
 ' sooner, and of a larger size, whilst sharper li-
 ' quor produceth them thicker and smaller, and
 ' not so soon. Slow and quick boiling make also
 ' a remarkable difference; for from the former,
 ' the curds are larger, and the separation con-
 ' sequently sooner than from the latter. The
 ' different size of the vessels in which they are
 ' boil'd, produces also a visible alteration in this
 ' matter. Thus, in a copper of a barrel and a

WEEKLY OBSERVATIONS. 311

half, the wort broke in three quarters of an hour, and yet, the same wort in a copper vessel containing three pints, tho' boil'd half an hour longer, did not come to a perfect breaking at all; but the curds still continued thick and small. With the same success, I made another trial in a small copper of eight quarts. In two hours and a half, the breaking was compleat in the larger copper from whence the wort was taken, which in the smaller afforded no signs of breaking at all. Were I to assign a reason for this difference, I should ascribe it to this; that the union of the grumes together, in such larger parts as is necessary to make them subside, is obstructed by the too great agitation of the quicker and more violent boiling. To the same cause it is also owing, that the breaking in large coppers of forty barrels, happens as soon, if not sooner than in the small ones of a barrel or two. And to add no more, this is also the reason, why the lessening the fire, or adding cooler wort to a smaller quantity, boiling in a larger copper which is long a curdling, shall greatly forward the breaking in it.

From these experiments it appears, that a heat too violent hinders the compleat separation, breaking or subsiding of the grumes. But this is not the only obstacle, for should the

' heat be too remiss or gentle, the like effects
 ' will also be produc'd. This I learned from the
 ' following experiment: I placed some strong
 ' ale-wort in the heat of a *Balneum Mariae*,
 ' viz. in a jug set in an iron pot full of water;
 ' —this water I kept simmering for four hours,
 ' during all which time, there was but little
 ' curd, and that but small and fine, even at the
 ' four hours end. The wort itself was then both
 ' clear and fine, and indeed much more so, and
 ' with a much less quantity of curd, than was
 ' produc'd in ale-wort from the same malt of
 ' the same strength, expos'd in a vessel, to the
 ' naked fire. Now, in each of these worts there
 ' was the same quantity of mealy matter con-
 ' tain'd in their pores, but the heat of *Balneum*
 ' *Mariae* was not sufficient for exhibiting it.—
 ' The mealy matter being left so fine and subtle
 ' as to be kept suspended in the pores of the
 ' wort, without destroying its transparency.
 ' From these two experiments, compar'd toge-
 ' ther, it appears, that a compleat separation or
 ' breaking in the wort depends upon a certain
 ' modification of heat in the water.—The ob-
 ' servations and conclusions from what I have
 ' now advanced, I shall refer to my next.'

I am, &c.

R—y W.

N^o LI. *Tuesday, March the 28th, 1738.*

GENTLEMEN,

THE matter which sinks to the bottom upon the breaking in the worts, is that which constitutes the sediment in the coolers. This is of a mixed taste, sweet and bitter; and appears to me to be the precipitation of the mealy parts of the malt, and the grosser, but bitter ones of the hop. My reason for thinking so is this. To two pounds of this sediment, I put three pints of water, and boiled them an hour; and after I had strained the liquor, I fermented it with barm: this afforded me an ale, tho' very bitter, yet in other respects by no means to be despised; besides, this ale kept good and sound for near two months. I must further observe, that the quantity of this sediment encreases by long boiling. This appeared by boiling a certain quantity of wort for half an hour, and the same quantity of the same wort for two hours; and after both were set apart for twelve hours, I found, that the wort which had boiled two hours, deposited double the quantity of sediment to that which had only boiled half an hour. I have only to add under this head, that I am well assured, that this sediment, thrown into small

314 THE DUBLIN SOCIETY'S

' beer, or into ale turn'd sour, will greatly help
' to enrich the one and restore the other.

' From the observations and experiments in
' this, and in my foregoing letter, I beg leave to
' draw the following conclusions:— 1st, Since
' the time of this breaking is so uncertain, some-
' times appearing in a quarter of an hour, and
' sometimes not in two or three hours; if it
' were fixed as a constant standard when to fi-
' nish boiling, it must necessarily be a very va-
' riable one, and such as would often prejudice
' the decoction of the hops by the evaporation
' of their more spirituous parts.

2dly, If the time of curdling was allow'd the
' standard, since this appears in large coppers
' as soon, if not sooner, than in the small ones,
' it would follow, that we ought to boil in small
' coppers as long as in the large ones—but this
' is prov'd to be absurd, for by boiling a small
' quantity of wort in a small copper, as long as
' a large quantity in a large one, the former will
' become as thick as mum, whilst the latter is of
' a due consistence.

' 3dly, From the experiment of the wort kept
' simmering in *Balneo Mariae*, where the curd-
' ling prov'd but small, and yet the wort was
' clear and fine; it appears, that the breaking
' of the wort, and the subsiding of the grumes
' occasioned by the heat of boiling continued

for a certain time, is in no wise essential to the transparency of the ale. For the particles which constitute the grumes in ale which breaks, are so minute as to remain suspended in the pores of this liquor without destroying or lessening its transparency. And hence it is that ale which has only boil'd fifteen or twenty minutes, and is made before the curdling happens, and ale which is made by infusion only, and where, of consequence, there is no curdling at all, shall be as bright and fine, as that which has undergone a perfect breaking.

4thly, Since the matter which subsides upon breaking, chiefly consists of the mealy parts of the malt, and grosser bitter parts of the hop; and since by long continued boiling, you precipitate these in a large quantity; it evidently follows, that if you prolong the boiling after you have extracted the virtues of the hop, you certainly impoverish the ale, in proportion to the quantity of sediment which falls to the bottom.—If to avoid this evil, you tun up the ale and so much sediment together; then the drink will be greatly expos'd to all the bad effects of repeated fermentations.

I have now finished what I had to offer on the head of brewing—and have principally confined my observations to the articles of boiling the hop, and meshing the malt, and that

chiefly in small coppers. There are many o-
 ther particulars in this important affair which
 deserve a serious examination, and will afford
 abundant matter for curious experiments, to
 those who are disposed to make a philosophi-
 cal enquiry subservient to the publick welfare.
 —particularly in the article of fermentation.
 —perhaps as much depends on that, as on all
 others put together, since an error here will
 spoil the whole. But the consideration of this,
 with proper instructions about vessels, cellerage,
 bunging, bottling, corking, &c. I must refer to
 those, whose inclination, capacity, and leisure
 qualify them for accomplishing so good a
 work.

I shall now take leave of your readers, and
 finish this letter, by placing in one view a
 brief summary of what I have at large advan-
 ced, against the common practice of boiling the
 worts two, three, or four hours.

1st, It robs the drink of the warm aroma-
 tick quality of the hop, and of the native spi-
 rit of the malt.

2dly, It forcibly evaporates the diluting
 and active parts of the worts, and reduces
 them to an inert viscid decoction approaching
 to the consistence of mum.

3dly, Long boiling gives a high colour to

WEEKLY OBSERVATIONS. 317

the drink, and extracts the more terrestrial and grosser parts of the hops.

‘ 4thly, By two or three hours boiling, the wort is robb’d of so much of its bitter, as the hop re-attracts to itself.

‘ 5thly, By prolonging the boiling after the beginning of the precipitation of the curds, the quantity of the sediment is increased and the strength of the ale proportionably diminished.

‘ 6thly, and lastly, It tends considerably to waste a great deal of drink and fire, of time and labour.’

I am with the greatest respect,

Gentlemen, &c.

R—y W.

N^o LII. *Tuesday, April the 4th. 1738.*

THE Society have declared their intention of collecting their Observations into volumes, and fix’d the number of those papers which are to be included in the first : it will therefore be no surprize to any, that they should avoid at present, to enter upon any subject which may require a series of reflections. This is the concluding paper of the volume, and upon that account it were an impropriety at least, to start new matter in it.

It will be a more natural conclusion to look

back a little on the several parts of the foregoing volume, and to dismiss the reader with some general reflections, which may engage and perhaps direct him to make a proper use of it.

A good many of the papers it contains, will appear on reflection to have been design'd as short political essays on the present state of Ireland, in relation to our trade especially, and more particularly still, to the linen manufacture.—What influence these may have in time to reform general and national mistakes, to alter the old customs and inveterate habits, which have hitherto prevented our prosperity, depends on too many distant circumstances, to be foreseen distinctly: a private man can do little more than wish that we may be wise enough at last, to engage nationally in national concerns, and pursue the common welfare with a truly public spirit.

In other instances, 'tis in the power of every single gentleman to make the good designs of the society successful. He may introduce with ease, the methods recommended in their papers among his tenants and dependents, or at least, by observing them himself, afford his neighbours experimental proofs of their expediency.

If gentlemen will not thus exert themselves, we have certainly writ in vain, and without a

heartly concurrence on their part, our best endeavours must terminate at last, in affording a barren entertainment to the curious once a week.

The common farmer is not able to run the risk of an experiment, and till he sees his profit so clearly that he cannot mistake it, he is justified by his unhappy circumstances in rejecting all expensive innovations. Such are those requir'd to bring flax-husbandry to the same perfection which it has attain'd in Holland—Such in a higher degree are those, which we have recommended in flax-dressing, and therefore in neither of those instances can it be reasonably expected, that the reformation should begin among the poorer sort.

We are indeed fully satisfied, and every reader must be so, who has read our instructions with attention, that whoever first attempts the latter, will be amply rewarded by success. But as regular flax-dressing requires a considerable fund, and among our common people, not one in many hundreds has even an inconsiderable one, 'tis an unreasonable hope, that it should take its rise among them. Men of fortune must necessarily lead the way, and by publishing the advantages they have reap'd from the experiment, encourage others to engage in the same attempt.

'Tis certainly the least the society can claim in return for their endeavours, that the success of their directions should be imparted to them. And they accordingly desire all true lovers of their country, to keep up a correspondence of this kind, and enable them to recommend their methods, from the happy fruits of them among our selves.

This is to be understood not only of flax-husbandry and flax-dressing, but of all other subjects also, concerning which the Society has publish'd compleat and full directions. Such are the banking out of tydes and floods, the raising of hops in bogs, and the making and repairing of high-roads.

In all these except we have any where mistaken, and in that case we shall be always pleased to be set right, there is nothing more in our correspondent's power than to observe instructions with caution and exactness, and give us some account of the event.—But upon other subjects, a great deal more may be reasonably expected. In our observations concerning cyder, we had not a sufficient number of approv'd experiments to go upon,—much therefore has been left to future tryals, and to direct gentlemen in making them, was a main part of our design in writing. Upon this account, we beg leave to recommend it to their care to improve upon our hints

by accurate enquiries, to make tryal of the several methods by us explain'd, and watch the result of each with diligence and due attention. The same thing holds in relation to the essay upon brewing, it is visibly imperfect, and takes in but a single branch of that useful and extensive art. — There is, as in the former case, room for new experiments equally important with those already made, and which we hope some well-wisher to this country will be inclin'd to try. Different degrees of fermentation have different effects, and make considerable alterations in liquors, otherwise the same. It would be therefore an enquiry of some moment, what degree of it suits malt liquors best: how much barm is necessary to produce it: what heat may be proper to assist it, and what ill consequences may arise from the excess of fermentation on the one hand, and the defect of it on the other.

In subjects, which we have not yet attempted, we beg leave to recommend the same methods—if gentlemen would make experiments, or communicate those they have already made, we could write to more advantage, and direct those, who want information more securely; and in whatever shape they are pleased to send their observations, they shall be thankfully receiv'd. Those on tillage will be particularly agreeable; when we resume this paper in Oc-

tober next, that will probably take up our thoughts, and we hope every one will readily contribute to make our directions on that important article as perfect and compleat as may be.

We shall now dismiss the reader, with the following answer to the only objection which has reach'd us, against the papers which have hitherto appear'd.

The ingenious author of the letters upon brewing, has been sometimes oblig'd in relating the several experiments he had made, to use technical expressions, which were not perhaps universally or distinctly understood. This was strictly unavoidable, without retrenching many curious observations. Chymical operations must be chymically describ'd, and were it not for those compendious and significative phrases, which have obtain'd in the language of the learned, 'tis not to be imagin'd to what bulk the relation of every little process in chymistry would swell.

This apology for our correspondent, is intended also as an excuse for other parts of the society's performances, which like his, have been thought by some too philosophical for common readers, both in the matter and expression. The instances are few. In the description of machines, in explaining their operations on the

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flax, or the make and texture of the flax itself, the nature of the subject made it necessary to recede a little from the general rule we had laid down, of speaking directly to the vulgar: every where else, it has been our endeavour to deliver our instructions in the most familiar manner, and if possible, in those which are to follow, we will still adhere more closely to this rule.

M.



F I N I S.

WEEKLY OBSERVATIONS. 323
 of the male and texture of the hair
 the nature of the subject made necessary to
 trace a line from the general rule we had
 laid down, of speaking the vulgar;
 every where, it has been
 either our intention, or
 manner, and if possible, to
 follow, we will still adhere more closely to this
 rule.



28/7/64

R. F. J.

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